

**EXHIBIT 5**  
**Redacted-Public Version**

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IN THE UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION

-----x  
NETWORK PROTECTION SCIENCES,  
LLC,

Plaintiff,

vs.

Case No. 3:12-CV-01106-WHA

FORTINET, INC.,

Defendant.  
-----x

August 5, 2013  
9:36 a.m.

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY  
PURSUANT TO THE PROTECTIVE ORDER

Deposition of CHRISTIAN B. HICKS, held at  
the offices of Quinn, Emanuel, Urquhart &  
Sullivan, LLP, 51 Madison Avenue, New York, New  
York, before Roberta Caiola, a Shorthand  
Reporter and Notary Public within and for the  
State of New York.

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## 5 E X H I B I T S

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| 6  | Exhibit     | Description  | Page |
| 7  | Exhibit 192 | Expert report of Christian B. Hicks  | 10   |
| 8  | Exhibit 193 | Defendant Fortinet, Inc.'s Identification of Preliminary Claim Constructions Pursuant to Patent Local Rule 4-2 | 126  |
| 9  |             |  |      |
| 10 | Exhibit 194 | Document entitled "Exhibit Configuration Summary"  | 155  |
| 11 | Exhibit 195 | Document (retained by Mr. McGreary)  | 155  |

12

13 (Original exhibits retained by the Court  
 14 Reporter to accompany the transcript, with the  
 15 exception of Exhibit 195 which was retained by  
 16 Mr. McGreary)

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1 CHRISTIAN B. HICKS, having been duly sworn by  
2 the Notary Public, (Roberta Caiola), was  
3 examined and testified as follows:

4 EXAMINATION BY MR. MCGREARY:

5 Q. Good morning, Mr. Hicks.

6 A. Good morning.

7 Q. My name is Vincent McGreary and I  
8 represent Network Protection Sciences in this  
9 matter.

10 As I understand it you are a  
11 retained expert witness for Fortinet, is that  
12 right?

13 A. That's correct.

14 Q. How many times have you testified  
15 as an expert witness?

16 A. You mean in deposition or in trial  
17 or in arbitration?

18 Q. Why don't we take deposition first.

19 A. Let me think. I can give you a  
20 vague number or I can go through my mind and try  
21 to count it up, which would you prefer?

22 Q. Why don't you give me your best  
23 estimate?

24 A. Half a dozen times.

25 Q. So you're familiar with the process

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1 of giving deposition testimony?

2 A. I am.

3 Q. You understand that you're under  
4 oath?

5 A. I do.

6 Q. You understand that it's my  
7 opportunity to ask you questions and you're  
8 obliged to answer those questions as best you  
9 can?

10 A. Subject to certain limitations, I  
11 understand that's generally the practice, yes.

12 Q. What limitations do you understand  
13 that there are in answering my questions as best  
14 as you can?

15 A. I understand there are certain  
16 circumstances where I may be instructed not to  
17 answer.

18 Q. Other than those circumstances, you  
19 understand that you are obliged to answer my  
20 questions as best as you can answer them?

21 A. Yes.

22 Q. You also understand that I may ask  
23 you questions that are of the yes or no formate;  
24 you've seen those questions in a deposition,  
25 right?

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1 A. Yes.

2 Q. If you can answer them yes or no  
3 you will do that for me?

4 A. Yes. Let me say more precisely.  
5 I'll provide the best answer I can, if it  
6 happens to be a yes or no answer I'll make it  
7 that.

8 Q. So if it's a yes or no question,  
9 what other type of answer would be better than  
10 yes or no?

11 A. If neither yes nor no most  
12 precisely answers the question, then some other  
13 answer is called for.

14 Q. Well, you understand that if I ask  
15 you a yes or no question Mr. Cooper here will  
16 have an opportunity on cross-examination, or  
17 trial on redirect, to ask you about any answer  
18 that you gave if he thought that there was  
19 another answer that was more precise. You  
20 understand that, right?

21 A. I do understand that.

22 Q. So you understand that as I ask you  
23 questions today that are yes or no, or even  
24 other types, that you shouldn't be trying to  
25 slip in information into those answers unless

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1 they are actually directed to the question. You  
2 understand that, right?

3 A. I understand that. I understand  
4 that I should give the most precise answer that  
5 I can.

6 Q. To the question?

7 A. To the question.

8 Q. How many times have you testified  
9 at trial?

10 A. Well again, there's times and  
11 there's trials. I've testified I think in three  
12 trials and an arbitration that I can think of  
13 right now. In two of those trials I testified  
14 twice, once at a hearing and then once at trial.

15 Q. How many times have you been  
16 engaged as an expert for litigation purposes?

17 A. I'm not sure if this is exactly  
18 what you're asking, but I think it is so I'll  
19 provide this answer, and let me know if it's not  
20 what you're looking for.

21 I think I've worked on somewhere  
22 between 100 and 200 different matters, most of  
23 those involving litigation, or many of those  
24 involving litigation or possible litigation.

25 MR. MCGREARY: Any chance we have



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1 the exhibit number?

2 MR. COOPER: I'm almost there I  
3 think, if it's in the rough transcript  
4 accurately; the internet is not moving very  
5 fast.

6 Q. So in your expert report which when  
7 we an get exhibit number I'll mark and hand to  
8 you so you will have it in front of you, I  
9 believe you stated that you worked on more than  
10 130 technical matters?

11 A. That sounds right.

12 Q. Are all those technical matters  
13 with respect to technical litigation consulting?

14 A. As a general matter yes, although  
15 they don't all involve actual litigations.

16 Q. The company that, according to your  
17 expert report, that you are president of is  
18 called Elysium Digital, LLC, is that right?

19 A. It is.

20 Q. Are you president or employed by  
21 any other companies?

22 A. No. Let me think. Am I president  
23 or employed by any other companies. I don't  
24 believe I'm president of any other companies.  
25 I'm a member of some other LLCs or small

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1 corporations.

2 Q. What other corporations are you a  
3 member of?

4 A. There's a company called EDIPP,  
5 Elysium Digital IP Products I think is what it  
6 stands for, which is a company that develops  
7 certain kinds of products related to litigation  
8 consulting.

9 Q. Any other companies?

10 A. There's a company called Secure  
11 Licensing Systems, which relates to some prior  
12 research and work that I did with a colleague of  
13 mine, Peter Creath, on the licensing systems.

14 Q. By "licensing systems" do you mean  
15 licensing systems for digital media and those  
16 types of things?

17 A. For software and digital media.

18 Q. Are you a member of any other  
19 companies?

20 A. I don't think so. I can't think of  
21 any others right now.

22 Q. I believe you said you founded  
23 Elysium in around 1997?

24 A. That's correct.

25 MR. MCGREARY: Let's go off the

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1 record.

2 (Off the record.)

3 MR. MCGREARY: Let's mark  
4 Exhibit 192.

5 (Exhibit 192, Expert report of  
6 Christian B. Hicks, marked for identification.)

7 Q. Mr. Hicks, I've handed you what we  
8 have marked as Exhibit 192. Do you recognize  
9 the document?

10 A. Paging through it this appears to  
11 be a copy of my non-infringement report in this  
12 matter.

13 Q. We may be referring back and forth  
14 to this report for certain lines of questioning  
15 so I'm going to leave it in front of you. If at  
16 any point to answer one of my questions you feel  
17 like referencing your report would be helpful,  
18 you can tell me that.

19 A. I understand.

20 Q. I want to direct your attention to  
21 the "Background" section which is on page 2 of  
22 your report?

23 A. Yes.

24 Q. In this section did you set forth  
25 the background which you feel qualifies you to

1 render the opinions that are contained in this  
2 report?

3 A. I set forth some of it. I think  
4 there are other things that qualify me, but I  
5 set forth what I thought were the most important  
6 things.

7 Q. Did you understand in preparing an  
8 expert report that you should have listed all  
9 the qualifications that would have qualified you  
10 for the expertise to render the opinions in your  
11 report?

12 A. My understanding was that I needed  
13 to set forth those qualifications that were  
14 sufficient to show that I was a qualified  
15 expert.

16 Q. Do you expect to testify to  
17 additional qualifications at trial that are not  
18 contained in your report?

19 A. I don't have any such plans right  
20 now.

21 Q. What was the understanding in  
22 preparing this expert report for what it would  
23 be used for in this litigation?

24 A. Well, my understanding was that it  
25 was a Rule 26 disclosure, so in that regard it

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1 would serve to set forth my expected testimony  
2 at trial.

3 Q. Was it your understanding that you  
4 were to set forth all of your expected testimony  
5 at trial, and the bases for any opinions that  
6 you gave in your report?

7 MR. COOPER: I'll object to the  
8 extent that this question is calling for  
9 communications between the witness and counsel  
10 at Quinn Emanuel, it's in violation of the  
11 stipulation between the parties. To the extent  
12 that you can answer without divulging such  
13 communications, you may do so.

14 Q. So what Mr. Cooper is speaking  
15 about is that we have a stipulation between the  
16 parties that we would not inquire into  
17 communications between counsel and expert  
18 witnesses, so to the extent if you feel one of  
19 my questions is directed to that, it's not, and  
20 you can feel free to exclude those  
21 communications?

22 A. I understand.

23 Q. So my question is you've testified  
24 and prepared expert reports other than what's  
25 marked as 192, correct?

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1 A. Correct.

2 Q. So you have an understanding of  
3 what Rule 26 disclosures require of an expert  
4 report in federal court, right?

5 A. I have an expert's understanding,  
6 not an attorney's understanding.

7 Q. So your understanding -- it was  
8 your understanding that you had to set forth all  
9 of your opinions, and the bases thereof, that  
10 you expected to testify to at trial?

11 A. My understanding was that I would  
12 do that, and in fact I did do that. Whether or  
13 not I have to do that -- whether or not I had to  
14 do that I think is a legal question that's  
15 slightly beyond any qualifications. My  
16 understanding is that was what I should do.

17 Q. You didn't have an understanding  
18 that you had to do it?

19 A. I'm aware that sometimes people are  
20 permitted to testify beyond the scopes of their  
21 expert reports, and exactly when that is or is  
22 not permissible is not something that I am an  
23 expert on.

24 Q. You did not exclude any opinions or  
25 bases thereof that you expected to testify to at

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1 trial?

2 A. No.

3 Q. What about for your qualifications.  
4 Did you exclude purposely any qualifications  
5 that you expected to give at trial that would  
6 qualify you as an expert for the opinions that  
7 you set forth in your expert report marked as  
8 192?

9 A. I didn't purposely exclude anything  
10 that I expected to reference at trial.

11 Q. Directing your attention to the  
12 background again. Is this the section of your  
13 report where you set forth your qualifications  
14 for giving the opinions you expressed in your  
15 report?

16 A. This is the section of the report  
17 where I set forth some of my qualifications, and  
18 those qualifications that I think sufficient to  
19 show that I'm qualified as an expert to give  
20 opinions in this report.

21 Q. Is there any other section of your  
22 report where you set forth qualifications that  
23 you expect to testify to at trial?

24 A. I don't believe so.

25 Q. So you co-founded Elysium in 1997,

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1 is that correct?

2 A. It is.

3 Q. Who is your co-founder?

4 A. Peter Creath.

5 Q. Who is Mr. Creath?

6 A. He is the vice president of Elysium  
7 Digital and the other member of the LLC.

8 Q. Between 1997 and to date, what  
9 percentage of your income comes from your work  
10 at Elysium?

11 A. That's a little bit difficult to  
12 say. First of all it's a large number of years  
13 and also I've been married for some of those  
14 years, my wife works and we have investment  
15 income as well.

16 Q. So let me clarify the question.

17 A. That would be great. I can try  
18 that one, but it's better if you do a different  
19 one.

20 Q. I want to exclude your wife's  
21 income. She does not work for Elysium, does  
22 she?

23 A. She does not.

24 Q. I want you to include only work  
25 with respect to technical matters, okay?



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1                    A.        Okay.

2 Q. I want you to exclude investment  
3 income?

4                    A.        Okay.

5 [REDACTED]

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\_\_\_\_\_

\_\_\_\_\_

☐ \_\_\_\_\_

☐ [REDACTED]

\_\_\_\_\_

**[REDACTED]**

\_\_\_\_\_

[REDACTED] [REDACTED]

20 Q. Would the same be true for last  
21 year?

22                   A.       I believe so.

\_\_\_\_\_

\_\_\_\_\_

|   | 1    | 2    | 3    | 4    |
|---|------|------|------|------|
| 1 | 0    | 0.67 | 0.33 | 0.50 |
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| 4 | 0.50 | 0.50 | 0.50 | 0    |

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■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

4 Q. Elysium is a litigation consulting  
5 company, isn't that right?

6 A. Yes.

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

13 Q. In your background you say you  
14 worked on more than 130 technical matters while  
15 at Elysium?

16 A. Yes.

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

21 Q. Did you list your matters anywhere  
22 in your report?

23 A. I did not. It turns out also to be  
24 practically difficult because many of them are  
25 confidential.

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1 Q. Did you list the firewall matters  
2 in your report?

3 A. No.

4 Q. Were they confidential?

5 A. Some of them.

6 Q. Did you list the non-confidential  
7 ones?

8 A. No.

9 Q. Did you exclude them because they  
10 did not help qualify you as an expert in this  
11 matter?

12 A. The word exclude suggests a  
13 deliberateness of decision. I set down the  
14 qualifications that I thought were necessary to  
15 qualify me and then I stopped. I don't remember  
16 making an active decision to exclude providing  
17 detail on the firewall matters.

18 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

25 Q. You're not certain. How about the

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1 broader category of data networking security.

2 Of the 130 litigation technical consulting  
3 matters that you worked on, how many of them  
4 were related to data networking security?

5 A. Data networking security, by that  
6 do you mean computer security in general?

7 Q. Are you an expert in data  
8 networking?

9 A. Yes.

10 Q. So I mean it in the scope of the  
11 expertise that you understand data networking to  
12 mean.

13 A. Okay. So applying what I consider  
14 to be a reasonable definition of that term the  
15 number would be higher, perhaps north of 40.  
16 Again, I can't be certain.

17 Q. What is your understanding of the  
18 term data networking?

19 A. It is the field of networking and  
20 the data which travel those networks.

21 Q. So which matter that you worked on  
22 would you consider most closely aligned with the  
23 work that you've done in this case?

24 A. I'm afraid the first two things  
25 that come to mind are confidential. We have

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1 permission to describe -- I have secure  
2 permission to say the following. [REDACTED]

3 [REDACTED] Some of that work I think is  
4 applicable here, is closely applicable here.

5 Q. So I'm not going to be hearing from  
6 you however at trial about these confidential  
7 matters that you're not telling me about today,  
8 am I?

9 A. I don't suspect so. Although the  
10 confidentiality status of those things can  
11 change if the parties go public.

12 Q. You're aware that there is a  
13 protective order in this case?

14 A. I am.

15 Q. Is it your feeling that your  
16 confidentiality requirements still prohibit you  
17 from testifying about those matters in this  
18 case?

19 A. They do. As a general rule I don't  
20 take that position, but the security on those  
21 particular matters is high. I would have to  
22 seek a protective order and then consult with  
23 the client.

24 Q. Have you published any papers on  
25 data networking?

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1 A. I don't believe so.

2 Q. Have you built any firewalls?

3 A. Yes.

4 Q. What firewalls have you built?

5 A. I've built several firewalls in  
6 connection with operations at the office or  
7 other offices.

8 Q. Well, go ahead and tell me.

9 A. We have built firewalls at Elysium  
10 on several occasions, I was involved in some of  
11 those efforts over the years. I built a  
12 firewall for a nonprofit, having donated my time  
13 on a nonprofit called Project 55, I remember  
14 that. I've probably built others, those are the  
15 ones that come to mind.

16 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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Q. Was it a downloadable firewall that only needed to be configured, or did you actually build up the firewall from a Linux distro?

A. I built up the firewall from the Linux distro.

Q. What distro was it and what did you have to do to build it?

A. I don't remember which distro it was. In general, what I had to do was install the proper packages, configure it was either IP chains or IP tables properly, test it and deploy it.

Q. Did you have to write the source code for the firewall?

A. I did not. I had to write the rules.

Q. You had to write the policy rules?

A. Yes.

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■ [REDACTED]

2           A.       No. One of those firewalls  
3 actually required a kernel modification, I  
4 remember working on that with someone.

5           Q.       With who?

6           A.       Paul Mattal, M A T T A L.

7           Q.       What did you do?

8           A.       We modified a line of kernel code  
9 that was preventing it from recognizing the  
10 Ethernet cards properly.

11          Q.       You said we. Who did the  
12 modification?

13          A.       We were both sitting at the  
14 computer, I don't remember who was typing.

15          Q.       What else did you do on the  
16 project?

17          A.       Again, the same thing. Installed  
18 the distribution, installed the proper packages,  
19 write the rules.

20          Q.       Was that a packet filter firewall?

21          A.       Yes.

22          Q.       Did you publish any paper as a  
23 result of your work on that firewall?

24          A.       No. I'm referring back to my  
25 previous answer listing of firewalls. I've



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1 written one, well heavily modified an SMTP  
2 proxy. I had forgotten that earlier. I didn't  
3 mean to interrupt you.

4 MR. MCGREARY: Can you read back  
5 where I started to ask my question please.

6 (Question read.)

7 A. No, I don't remember publishing any  
8 paper.

9 Q. Did you file any patent  
10 applications?

11 A. Not based on firewalls.

12 Q. Have you done any -- have you ever  
13 been a professor at any educational institution?

14 A. Have I been a professor, meaning  
15 have I had the title of professor?

16 Q. Yes.

17 A. No.

18 Q. In 2012, what percentage of your  
19 time did you spend working on data network  
20 security?

21 A. I don't know.

22 Q. Less than half your time?

23 A. Probably less than half.

24 Q. Less than a quarter of your time?

25 A. I'm not sure of that. It might

1 have been north of a quarter.

2 Q. What matters related to data  
3 network security did you work on last year?

4 A. [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

9 Q. What were the security measures  
10 implicated?

11 A. I'm sorry?

12 Q. What were the security measures  
13 implicated?

14 A. [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

19 Q. Did it have to do with designing or  
20 researching a firewall?

21 A. It did not have to do with  
22 designing or researching a firewall.

23 Q. How about in your St. Jude Medical  
24 versus Volcano Corp. matter, what was the  
25 subject matter of that case?

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1           A.       Heart catheterization machines, not  
2     firewalls.

3           Q.       Are you an expert in heart  
4     catheterization machines?

5           A.       I'm an expert in the computer that  
6     the heart catheterization machine was built on  
7     top of.

8           Q.       How about in TB Interactive Data  
9     versus Sony Corp., what was the subject matter  
10    in that case?

11          A.       It was operating systems and  
12    responding to inserted media.

13          Q.       So what about operating systems and  
14    responding to inserted media?

15          A.       The patents at issue there were on  
16    mechanisms for having operating systems respond  
17    in certain ways to inserted media.

18          Q.       By inserted media you mean a disk?

19          A.       Yes.

20          Q.       It could be a USB drive?

21          A.       It could be. It was mostly about  
22    optical disks.

23          Q.       Mostly about optical disks?

24          A.       Yes.

25          Q.       And there are patents related to

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1     how an operating systems should respond to an  
2     inserted optical disk?

3             A.       Yes.

4             Q.       It has nothing to do with  
5     firewalls?

6             A.       It does not.

7             Q.       You say trial testimony in Optimus  
8     versus Eric Stark and Synergetics, what was that  
9     case about?

10            A.       [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

15            Q.       Did it have anything to do with  
16     firewalls?

17            A.       It did not.

18            Q.       [REDACTED]  
[REDACTED]  
[REDACTED]

21            A.       That was a departing employee case  
22     where somebody left his job and there were  
23     allegations of breach of fiduciary duty and  
24     trade secret misappropriation.

25            Q.       Did these trade secret cases have

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1 to do with the allegation that someone kept data  
2 that was stored on a computer when they should  
3 not have kept that data?

4 A. Well, these trade secret  
5 misappropriation cases, the different cases have  
6 different alleged facts. In some cases, as a  
7 general rule it has to do with whether or not  
8 people took things with them, but not always.

9 Q. As I see in your background you  
10 list computer forensics as some types of  
11 disputes that you are involved in and that you  
12 received training in data forensics from MTI in  
13 2003, correct?

14 A. Yes.

15 Q. What does forensics mean?

16 A. Computer forensics is the field of  
17 recovering and analyzing data.

18 Q. By recovering is a simple example  
19 that someone tries to delete material from his  
20 computer and so maybe file directories are no  
21 longer kept, but there might be a way to  
22 recovery the data anyway?

23 A. That is an example of computer  
24 forensics.

25 Q. Another example might be where

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1 someone takes a hard drive and smacks it with a  
2 hammer because he's trying to destroy the data,  
3 and you may specialize in being able to recover  
4 that data?

5 A. That is an example of computer  
6 forensics.

7 Q. How much of your time is spent on  
8 the computer forensics aspects of your  
9 expertise?

10 A. It's hard to break out because the  
11 work that we do frequently crosses over. For  
12 example, the Oracle Rimini Street case is  
13 fundamentally about understanding how material  
14 was downloaded, and proving how much was  
15 downloaded. That is a part computer science  
16 task and in some sense it is a computer  
17 forensics task.

18 We are reconstructing what happened  
19 from log files. It is also a mammoth computer  
20 science task as the problem of understanding how  
21 the machines work and managing the volume of log  
22 data that were going through our computer  
23 science problems as well.

24 Q. So you can't give me an answer?

25 A. I can't give you an answer off the

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1 top of my head. I couldn't break it down case  
2 by case, I would have to think about in the case  
3 what's the breakdown.

4 Q. You have an undergraduate degree,  
5 is that right?

6 A. That's correct.

7 Q. Do you have any postgraduate  
8 degree?

9 A. No. Only the forensic  
10 certification.

11 Q. How much time have you spent on  
12 configuring firewalls?

13 A. Hours of my life?

14 Q. In your life, yes.

15 A. I have no idea.

16 Q. Less than 100?

17 A. I really don't know whether it's  
18 less than a hundred. It could be more than a  
19 hundred, I really don't know.

20 Q. It's not in the thousands, right?

21 A. It seems unlikely it's in the  
22 thousands.

23 Q. You don't recall any firewall  
24 configurations other than the ones you testified  
25 about?

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1 A. Those are the ones I remember.

2 Q. How much time have you spent doing  
3 network design?

4 A. I've done quite a bit of network  
5 design, I couldn't tell you how many hours.

6 Q. What do you understand network  
7 design to be?

8 A. It's the laying out of a network,  
9 what machines are going to be where, which other  
10 kinds of equipment like routers and firewalls  
11 are going to be where.

12 Q. How many networks have you  
13 designed?

14 A. At least three, maybe four or more.

15 Q. What's the last network you  
16 designed?

17 A. We redesigned the company network  
18 when we moved offices.

19 Q. How many hosts are on your company  
20 network?

21 [REDACTED]  
[REDACTED] [REDACTED]  
[REDACTED] [REDACTED]

24 Q. How many employees do you have?

25 A. Somewhere between 40 and 50.



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Q. Did do you that network design

yourself?

A. I did. I worked with some other

people as well.

Q. Who did you work with?

A. Nahum Shalman, N A H U M, second

name is S H A L M A N, and Steve Schwartzberg

are the two main people I was working with.

Q. Are they employees of Elysium?

A. They are.

Q. What is their job at Elysium?

A. Nahum is the head of IT at Elysium,

Steve is another consultant who was also

pitching in on the network redesign.

Q. The head of IT, it's the IT

administrator at Elysium, Nahum.

A. Yes.

Q. How long has he been the IT

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1 administrator?

2 A. Several years at least.

3 Q. Who was the IT administrator before  
4 him?

5 A. I think it was actually Steve  
6 Schwartzberg who became a consultant.

7 Q. And before Steve?

8 A. Before Steve I think it was  
9 informal. The company had -- then you're  
10 getting back to when the company had fewer than  
11 ten employees, it was more of people pitched in.  
12 Paul Mattal did a lot of it back then and I did  
13 a lot of it. I still continue to be involved in  
14 it.

15 Q. Are the machines Unix machines in  
16 Elysium?

17 A. Elysium is a tough place from a  
18 network design and computer security standpoint  
19 because there are all different kinds of  
20 machines because of the variety of our work.  
21 Most machines are Linux machines, but we also  
22 have Macs and Windows machines, and an amazing  
23 number of other things, Sun boxes old, Sun  
24 boxes, newer solaris boxes.

25 Q. In your report at page 3, which is

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1 on Exhibit 192 in front of you, there is set  
2 forth a level of ordinary skill in the art, do  
3 you see that?

4 A. I see that.

5 Q. And you tell us that that is the  
6 level of ordinary skill in the art that  
7 Mr. Cheswick opined to, correct?

8 A. Yes.

9 Q. You read Mr. Cheswick's report?

10 A. I think I skimmed it, I don't think  
11 I've read it in detail. I think I just flipped  
12 through it quickly.

13 Q. Is that where you received the  
14 description of the person of ordinary skill in  
15 the art?

16 A. I believe so.

17 Q. Did you write this report?

18 A. Yes.

19 Q. So you typed in Mr. Cheswick's  
20 description of the level of ordinary skill in  
21 the art?

22 A. I think so. I typed the vast  
23 majority of this report. Some things I cut and  
24 pasted from one source or another.

25 Q. So you can't remember if you cut

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1 and pasted this in or if you typed it in?

2 A. I would expect that I cut and  
3 pasted it, because I tried to cut and paste  
4 larger blocks of text from other places, so I  
5 would have probably cut and pasted it from  
6 somewhere.

7 Q. Did you do your own analysis of the  
8 level of ordinary skill in the art?

9 A. I don't think so.

10 Q. Is there anywhere in your report  
11 where you set forth your analysis of the level  
12 of ordinary skill in the art?

13 A. No.

14 Q. Did you review Mr. Keromytis'  
15 description of the level of ordinary skill in  
16 the art?

17 A. I think I did, yeah.

18 Q. If the court were to reject  
19 Mr. Cheswick's level of ordinary skill in the  
20 art, is there any opinion you give in your  
21 report where you form your own conclusion as to  
22 the level of ordinary skill in the art?

23 A. I'm sorry, I --

24 Q. I'm going to withdraw the question.  
25 The question is withdrawn. Is there anywhere

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1 anywhere in your report where you apply, where  
2 necessary, a level of ordinary skill in the art  
3 that is not Mr. Cheswick's?

4 A. I don't think I do.

5 Q. When were you engaged by Fortinet  
6 and/or its counsel in this case?

7 A. I don't remember. Those sorts of  
8 things have become really hard for me to  
9 remember because I have twins who are 3-1/2, so  
10 I lost my ability to remember those things  
11 precisely a while ago.

12 Q. Was it in 2013?

13 A. I believe it was in 2013.

14 Q. Around January of 2013?

15 A. I really just don't know the  
16 answer. I could find out.

17 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

23 Q. Have others worked on it other than  
24 yourself?

25 A. Yes.

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1 Q. Who else has worked on it?

2 A. Matthew Meola, M E O L A, Paul  
3 Mattal, Steve Schwartzberg, Charlie Kohl, K O H  
4 L, and I think Jacob Walberg has also worked on  
5 it.

6 Q. Do you tell us in your report where  
7 you are relying on their work as opposed to your  
8 own?

9 A. I don't cull that out in  
10 particular. Insofar as they did work that I  
11 rely on the report, it's work that I directed  
12 and looked at.

13 Q. When did you begin to draft this  
14 report?

15 A. I started drafting this report  
16 after the first Keromytis report.

17 Q. How much money was earned by  
18 Elysium in the drafting of this report?

19 A. I don't know how that splits out.

20 Q. How many hours did it take to draft  
21 this report?

22 A. I think I spent, I'll ballpark it,  
23 my guess is somewhere between 20 and 30 hours,  
24 that's just of my writing.

25 Q. I'd like to direct your attention

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1 to page 3 of your report?

2 A. Yes.

3 Q. You see the heading 1.3.1.5 on page  
4 3 of Exhibit 192?

5 A. Yes.

6 Q. What was there that you deleted?

7 A. I don't think I deleted anything  
8 there. I think that was just an extra carriage  
9 return on the end of the previous one which  
10 automatically created the new number.

11 Q. Have you ever been qualified as an  
12 expert in data networking security?

13 A. I believe the answer is yes.

14 Q. In which matter?

15 A. I don't know whether this is listed  
16 in my CV because it's older. I think in 2003 I  
17 testified in a case called Standler v RSA. In  
18 that case I testified about a variety of  
19 computer security products and their use of the  
20 SSL protocol.

21 Q. Were any of them firewalls?

22 A. I don't think any of them was a  
23 firewall.

24 Q. Have you ever been qualified as an  
25 expert in firewalls?

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1 A. Not that I recall.

2 Q. Have you ever been qualified as an  
3 expert in transparent application layer proxy  
4 firewalls?

5 A. Not that I can recall.

6 Q. Do you consider yourself an  
7 authority in the field in firewalls?

8 A. I consider myself an expert in  
9 computer science and computer security. I don't  
10 know whether I consider myself an authority in  
11 the field, I'm not exactly sure what that means.

12 Q. If I asked Mr. Cheswick, would he  
13 recognize your name as an authority in the field  
14 of data networking security?

15 A. I don't know. I presume not, but I  
16 don't know.

17 Q. Why do you presume not?

18 A. It's my general tendency not to  
19 presume that people will be aware of me or think  
20 that I'm famous.

21 Q. I would like to direct your  
22 attention to page 2 of your report, heading 1.2  
23 which is what's called the assignment section.  
24 Do you see that?

25 A. I do.



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1           Q.       I read the assignment section to be  
2       that you were to investigate the correctness of  
3       the expert infringement report of Mr. Keromytis,  
4       is that right?

5           A.       Yes.

6           Q.       Did you have any other assignment  
7       other than to look at the correctness of his  
8       report?

9           A.       That and what springs from it,  
10       which is insofar as the report reaches incorrect  
11       conclusions to identify those; but all of that  
12       falls under the correctness of the report.

13          Q.       Did you do a separate infringement  
14       investigation of any FortiGate products?

15          A.       No. The only infringement  
16       investigations that I did related to looking at  
17       it in the context of the Keromytis report.

18          Q.       Do you expect to give testimony on  
19       how the claims that are asserted in this case  
20       ought to be construed by the court?

21          A.       I don't have any plans to give such  
22       testimony.

23          Q.       Looking back at Mr. Cheswick's  
24       definition of the level of ordinary skill in the  
25       art as set forth on page 3 of your report?

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1 A. Yes.

2 Q. Did you have that level of skill in

3 1994?

4 A. In 1994?

5 Q. Yes.

6 A. No.

7 Q. Did you have it in 1995?

8 A. No.

9 Q. 1996?

10 A. No.

11 Q. 1997?

12 A. No.

13 Q. 1998?

14 A. No.

15 Q. 1999?

16 A. No.

17 Q. 2000?

18 A. No.

19 Q. 2001?

20 A. No.

21 Q. 2002?

22 A. Yes, I think so.

23 Q. Take a look at the discussion of

24 ordinary skill?

25 A. Yes.

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1           Q.       What skill did you obtain in 2002 I  
2 believe you testified that allowed you to  
3 conclude at that point you had achieved the  
4 level of ordinary skill set forth in your  
5 report?

6           A.       At that point I would have a  
7 four-year computer science degree, plus  
8 five years of industry experience. I would  
9 understand network topologies and routing,  
10 router installation and configuration. I was a  
11 competent system administrator on Unix machines.

12                   I was a competent C programmer,  
13 able to write and debug programs that use  
14 sockets, streams or other network connection and  
15 input/output functions, and I was comfortable  
16 making modest kernel source code changes,  
17 rebuilding and reinstalling the modified kernel.

18           Q.       Other than the one time you  
19 testified to doing a kernel modification with  
20 Mr. Mattal, had you done any other kernel  
21 modifications by 2002?

22           A.       Yes.

23           Q.       What were those?

24           A.       I don't remember, but I remember  
25 downloading, modifying and installing kernel.

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1           Q.       So Mr. Cheswick sets forth industry  
2     experience of five to seven years. What  
3     industry did you understand Mr. Cheswick to be  
4     contemplating in setting forth the ordinary  
5     level of skill in the art?

6           A.       Computer science or computer  
7     engineering related industry.

8           Q.       You did not understand him to be  
9     setting forth the industry experience related to  
10    the subject matter of the '601 patent?

11          A.       I understood computer science or  
12    computer engineering.

13          Q.       If Mr. Cheswick was contemplating  
14    the subject matter of the '601 patent, would  
15    that change whether or not you have or you could  
16    conclude that you achieved the level of ordinary  
17    skill by 2002?

18          A.       If Mr. Cheswick's definition  
19    required that you work 100 percent of your time  
20    in -- I'm sorry, let me back up and ask. For  
21    the purposes of this question what is the  
22    definition of the area of the '601 patent?

23          Q.       So you read the '601 patent,  
24    correct?

25          A.       Yes.

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1 Q. That's the definition.

2 A. So I'll take that to mean network  
3 security. If the question is when did I have  
4 five to seven years of experience where I was  
5 spending 100 percent of my time in network  
6 security it would not have been 2002, it would  
7 have been sometime later based on how much of  
8 the percentage would accumulate and exactly when  
9 I don't know.

10 If the answer is when have you been  
11 spending significant time in computer and data  
12 security, that would have been true in 2002.

13 Q. Do you consider your work at  
14 Elysium industry experience as related to the  
15 patent?

16 A. Yes.

17 Q. Your work in Elysium is litigation  
18 technical matters, isn't that right?

19 A. Yes.

20 Q. So the industry is litigation,  
21 isn't it?

22 A. Well, again, if you parse it finer,  
23 the work is frequently analyzing computer  
24 security issues.

25 Q. For litigation?

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1 A. Yes.

2 Q. So your calculation of when you  
3 achieved a level of ordinary skill would  
4 contemplate Mr. Cheswick counting on a  
5 litigation expert?

6 A. My definition says when you're  
7 working with firewalls, computer security issues  
8 on networks, the data that result from those and  
9 how to analyze them to figure out what happened  
10 on networks, then the definition of working in  
11 the industry in the area of computer security  
12 would include that.

13 Q. You don't claim to have five years  
14 of industry experience in data network security,  
15 do you?

16 A. Again, I do claim that for more  
17 than five years I've worked in computer security  
18 some of the time.

19 Q. I understand that, but five years  
20 of experience in data networking security, five  
21 years of industry experience; your testimony is  
22 that your litigation consulting is going to  
23 satisfy the five to seven years of industry  
24 experience for someone working in data network  
25 security?

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1           A.       I'm not sure how else to answer the  
2       question. Whether or not that satisfies those  
3       words, it depends on what people think those  
4       words mean.

5           Q.       I want you to contemplate for a  
6       moment a person who works full-time in the field  
7       of data network security, okay?

8           A.       Okay.

9           Q.       How many hours do you consider  
10      full-time to be?

11          A.       Being at the office -- typically  
12      full-time means being at the office 40 hours a  
13      week working productively some subset of that  
14      for whatever it is, 48 weeks a year.

15          Q.       Roughly, how many hours is that in  
16      a year?

17          A.       Well, let's see, 50 times 40 would  
18      be 2,000, it would be somewhat less than that,  
19      perhaps 1,500 hours a year.

20          Q.       For five years, five times 1,500?

21          A.       7,500.

22          Q.       7,500 hours. Do you have  
23      7,500 hours working on firewalls?

24          A.       Not on firewalls, no.

25          Q.       Do you have 7,500 hours working on

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1 data networking?

2 A. Maybe; I don't know.

3 Q. So you have 7,500 hours in working  
4 with data networking protocols?

5 A. Working on all different aspects of  
6 networking.

7 Q. Would that aspect include plugging  
8 in an Ethernet cable into a computer?

9 A. No.

10 Q. Do you know that you have  
11 7,500 hours of data networking experience, the  
12 broadest definition that you're contemplating?

13 A. I don't.

14 Q. So it's possible even as of today  
15 if we accept that as the definition, that you're  
16 not a person of ordinary skill in the art as set  
17 forth in Mr. Cheswick's definition?

18 A. It's possible that under those  
19 particular rules I'm not.

20 Q. There is a discussion in your  
21 report starting in heading number 3 of "Legal  
22 Principles"?

23 A. Yes.

24 Q. The understanding of legal  
25 principles that you set forth here, is that your



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1 understanding of the legal principles, or  
2 were -- withdrawn.

3 Were these legal principles  
4 provided to you?

5 A. As a general matter, yes.

6 Q. I want to direct your attention to  
7 heading 3.5. Have you worked on other patent  
8 matters other than this one?

9 A. Yes.

10 Q. So this is not the first time you  
11 heard these legal principles from some attorney,  
12 is it?

13 A. It's not.

14 Q. Take a look at 3.5 and 3.6?

15 A. Yes.

16 Q. The first sentence under "Induced  
17 Infringement", 3.5.1 reads, "I understand that  
18 induced infringement requires a showing of  
19 direct infringement of the asserted claim by a  
20 single infringer," do you see that?

21 A. I do.

22 Q. Is that your understanding that you  
23 wrote there based upon your other cases, or was  
24 that an understanding that was provided to you  
25 for this case?

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1           A.       That is an understanding that I  
2       reached in discussions with counsel.

3           Q.       Do you understand that sitting here  
4       today to be wrong?

5           A.       I don't.

6           Q.       Have you ever heard of the case  
7       Akamai v. Limelight?

8           A.       I don't recall that case.

9           Q.       How about 3.6.1, is that your  
10      understanding or an understanding that was given  
11      to you in this case?

12          A.       Again, it's an understanding that I  
13      reached in discussions on this case.

14          Q.       It wasn't one that you brought?

15          A.       That was not an understanding I  
16      brought.

17          Q.       If that understanding is incorrect  
18      and that there need not be a single direct  
19      infringer, would it change any of the opinions  
20      that you've set forth in your report?

21          A.       Let me take a quick look. I don't  
22      think it does. To give you a more certain  
23      answer I would have to read through this more  
24      carefully, and I don't want to burn up your  
25      clock if you don't want me to carry out that

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1 exercise, so it's up to you. Would you like me  
2 to pursue that in detail now?

3 Q. You see nothing right now that  
4 would tell you?

5 A. Flipping through it I don't see  
6 anything that would be effective, but it's  
7 pretty imprecise. The proper answer to the  
8 question is I don't know, I would have to look  
9 more carefully. Would you like me to?

10 Q. Do you consider any text  
11 authoritative in the field of firewalling?

12 A. Yeah, there are a couple of books  
13 that are big.

14 Q. Can you name them for me?

15 A. "Firewalls and Practical Internet  
16 Security" by Cheswick and Bellovin is probably  
17 the one that comes to mind as the big one.

18 Q. That's the one you reference in  
19 your book? Excuse me, withdrawn. That is the  
20 book you reference in your expert report?

21 A. I think I do reference that.

22 Q. There were two editions of that  
23 book, isn't that right?

24 A. I think that's right.

25 Q. I believe in your report you

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1 reference the 1994 edition if I'm correct?

2 A. I don't remember, I'll be honest  
3 with you.

4 Q. Let me direct you to page 10 of  
5 your report?

6 A. That looks like it's the 1994  
7 edition.

8 Q. Do you consider that edition to be  
9 authoritative of the state-of-the-art of  
10 firewall in 1994?

11 A. No. I'm sorry, authoritative given  
12 the state-of-the-art in 1994, I'm not sure.

13 Q. Did you read the book?

14 A. I have read the book, at least  
15 portions of the book over the years. I didn't  
16 reread it for this assignment.

17 Q. So you can't tell me one way or the  
18 other?

19 A. I can't tell you if it was  
20 authoritative as of 1994.

21 Q. Other than reviewing Mr. Keromytis'  
22 expert report, had you heard of Mr. Keromytis at  
23 all?

24 A. I don't think I had.

25 Q. Have you read any of his published

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1 papers?

2 A. I don't think I have.

3 Q. Do you know Mr. Keromytis to be  
4 anything other than technically qualified to  
5 give the opinions that he gave in his report?

6 A. I'm not putting forth an opinion  
7 one way or the other on that.

8 Q. You don't have an opinion that he  
9 is not technically qualified?

10 A. I am not opining that he isn't.

11 Q. Are you aware that Mr. Keromytis  
12 coauthored a paper with Mr. Cheswick?

13 A. I wasn't aware of that.

14 Q. You didn't read it before drafting  
15 your report?

16 A. I did not.

17 Q. Have you coauthored any papers with  
18 Mr. Cheswick?

19 A. I have not.

20 Q. How about with Mr. Bellovin?

21 A. No.

22 Q. Do you recognize the name Steve  
23 Bellovin?

24 A. I do.

25 Q. How do you recognize that name?

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1           A.       Because he's one of the most  
2     foundational people in computer security.

3           Q.       If Mr. Cheswick had given an  
4     assessment of Mr. Keromytis' credentials, do you  
5     have any reason to disagree with that  
6     assessment?

7           A.       I wouldn't have a view one way or  
8     the other.

9           Q.       Do you know what the difference is  
10    between an explicit proxy and a transparent  
11    proxy?

12          A.       Yes.

13          Q.       What are the differences?

14          A.       An explicit proxy, the client  
15    software is configured to instead of targeting  
16    the server that it actually wants to reach, to  
17    communicate with the proxy instead. In a  
18    transparent proxy the client software isn't  
19    aware, if you will, that it's being proxied.

20          Q.       So in an explicit proxy the client  
21    software would address the IP destination  
22    address to the gateway running the proxy?

23          A.       Well, let's be precise. In either  
24    case the IP packets are going to be written to  
25    send the packets to the proxy or else the proxy

1 wouldn't get them. But in one case the software  
2 had to be set up to talk to the proxy, and in  
3 the other case the packets will flow to the  
4 proxy by virtue of thinking that that's where  
5 they're supposed to go anyway and get handed  
6 there.

7 Q. Do you know what the OSI data  
8 networking model is?

9 A. I do.

10 Q. What is it?

11 A. It is a series of levels at which  
12 networking operates.

13 Q. Can you tell me the levels?

14 A. Not off the top of my head.

15 Q. Have you ever studied the levels?

16 A. Yes.

17 Q. Aren't the levels of the OSI model  
18 fairly common knowledge for an expert in data  
19 networking?

20 A. I'm not sure how to answer that  
21 question. I'm familiar with the levels, I work  
22 with them all the time; but I can't reliably  
23 recite all five of them to you right now.

24 Q. Who is your IT administrator?

25 A. Nahum Shalman.

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1 Q. Could you recite them to you if you  
2 asked him?

3 A. I don't know.

4 Q. You're in charge of hiring at  
5 Elysium?

6 A. No.

7 Q. Who's in charge of hiring?

8 A. Elizabeth Ridge.

9 Q. Do you have any input on it?

10 A. Yes.

11 Q. Did you have input on hiring your  
12 IT administrators?

13 A. Yes.

14 Q. If you were hiring someone in  
15 charge of network security would you have input  
16 on that?

17 A. Yes.

18 Q. Would you hire someone if they did  
19 not know the layers of the OSI model?

20 A. Maybe.

21 Q. Would it cause you some concern if  
22 they didn't know that?

23 A. If they weren't able to recite the  
24 names of it?

25 Q. Yes.



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1 A. No, it would not cause me concern.

2 Q. How about if they weren't able to  
3 explain how the layers interacted with each  
4 other?

5 A. You should know what the layers  
6 are, you should know what the point of it is.  
7 I'm not big on memorization.

8 Q. How about explaining how the layers  
9 interoperate with each other?

10 A. I'm not exactly sure what you mean  
11 by that but yes, insofar as the question is what  
12 are the layers and what is the difference  
13 between them and how do they work, you should  
14 know that.

15 Q. Go ahead and explain those to me?

16 A. The layers are an ever rising  
17 levels of extraction. At the lowest level it is  
18 the hardware layer, the layer which packets are  
19 transmitted at the interface level. At the  
20 highest level is the layer at which the  
21 applications interact with them.

22 Each layer builds on top of the  
23 other, so each layer that's higher up provides  
24 some sort of an encapsulation of the lower  
25 layer, thereby providing it easier to use

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1 abstraction to the layers above it.

2 Q. Is that your full explanation of  
3 it?

4 A. That's my explanation.

5 Q. In a transparent proxy, explain to  
6 me how the packet leaving the local host is  
7 addressed to and traverses the transparent proxy  
8 to the remote host?

9 A. That actually depends, there are  
10 different mechanisms you can use. A common one  
11 is that the proxy is set up as the route for the  
12 network in question that the packet is supposed  
13 to travel to. That means that it travels to the  
14 proxy essentially as if the proxy were a router.

15 Q. Explain to me the network  
16 addressing at the physical layer?

17 A. At the physical layer the packets  
18 have Mac addresses which reflect the hardware  
19 Mac address of the computer, and they address IP  
20 addresses. No, I'm sorry, it's just the Mac  
21 addresses at that level, at the physical layer.

22 Q. So tell me how the packet is  
23 addressed at the physical layer to be directed  
24 to the firewall and then traverse the firewall?

25 A. So the packet is going to have

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1 specified within it the IP address of its  
2 destination, that IP address includes a network  
3 that it's supposed to go to, and the network as  
4 a whole has a sense based on routing tables for  
5 which routers are responsible for routing  
6 packets for particular networks.

7 Q. What IP address does the packet  
8 have?

9 A. Destination IP address.

10 Q. Of what host?

11 A. Of its ultimate target.

12 Q. The remote host?

13 A. Yes.

14 Q. So it has the device address of the  
15 firewall?

16 A. I'm sorry?

17 Q. It has the Mac address of the  
18 firewall?

19 A. When it's initially sent it has the  
20 Mac address of the work station.

21 Q. How does it find the firewall?

22 A. The packet enters the network and  
23 each device in the network is aware of how the  
24 network is routed, that's what's setting up the  
25 network is. Because this packet is say routed

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1 to the internet as an example, the routers send  
2 it to what they believe to be the route, the  
3 internet, which is the firewall.

4 Q. When you say sent what address do  
5 they use?

6 A. So the routers know what the other  
7 routers are, so each of those takes the packet  
8 and sends it onward on an interface to the next  
9 step along the chain that gets it closer to the  
10 network it's supposed to go to.

11 Q. Using what addresses?

12 A. Using the destination IP address.

13 Q. Not the Mac addresses?

14 A. Not the Mac addresses.

15 Q. You discussed in your report a  
16 concept called NAT, N A T, is that correct?

17 A. Yes.

18 Q. That's short for what?

19 A. Network address translation.

20 Q. Does your expertise fall into the  
21 concepts of network address translation?

22 A. I know what network address  
23 translation is and how it works.

24 Q. How deep would you say your  
25 knowledge is?

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1           A.       I'm not sure how to answer that  
2     question.

3           Q.       Are you an expert in network  
4     address translation?

5           A.       I'm an expert in computer science  
6     including networking, including NAT.

7           Q.       Do you consider you are a  
8     consulting expert in NAT?

9           A.       I'm not sure whether or not you can  
10    be an expert in every micro subfield; but yes, I  
11    consider my expertise to include that.

12          Q.       When did NAT come into existence?

13          A.       I don't remember exactly.

14          Q.       Do you know who developed NAT?

15          A.       I don't.

16          Q.       Do you know what it was developed  
17    for?

18          A.       Yes. In general it was to address  
19    the problem of having more hosts than one has  
20    actual internet addressable IP addresses.

21          Q.       Who developed it?

22          A.       I don't remember.

23          Q.       Do you know if any industry  
24    standards govern NAT?

25          A.       There's an RFC for it. I believe

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1 it's not actually a standard, not like an IEEE  
2 standard or ITF standard. In part, because the  
3 NATing behavior of a particular party on the  
4 internet does not necessarily affect others, so  
5 there doesn't need to be a formal standard.

6 Q. Do you know when NAT was first  
7 implemented on a firewall?

8 A. I have a sense it was in the mid to  
9 late '90s, but I don't know exactly when.

10 Q. Why do you have a sense of that?

11 A. I think I've seen a paper on NAT  
12 maybe around '96 or so.

13 MR. COOPER: Vin, we've been going  
14 for over an hour so if we can take a break?

15 MR. MCGREARY: Sure. Let's go off  
16 the record. Take as long as you want. I'm  
17 probably going to use the whole 3-1/2.

18 (Short recess taken at 10:46 a.m.)

19 (Resumed at 10:57 a.m.)

20 Q. Mr. Hicks, who contacted you about  
21 being engaged for this matter?

22 A. I don't remember. I might have  
23 been informed of it by one of my colleagues. I  
24 might not have been the initial point of  
25 contact.

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1 Q. Who might have been the colleague?

2           A.       It might have been Paul Mattal, I  
3    don't remember.

4 Q. Had you ever been engaged by  
5 Fortinet for any other matters?

6           A.       I don't remember. I don't think  
7   so, but I can't be positive of that. I don't  
8   remember working on any matter for Fortinet  
9   before.

| Category | Sub-category | Value |
|----------|--------------|-------|
| 10       |              | 100   |
|          |              | 20    |
|          |              | 100   |
|          |              | 40    |
|          |              | 80    |
|          |              | 30    |
|          |              | 60    |
|          |              | 20    |
|          |              | 50    |
|          |              | 40    |
| 11       |              | 100   |
|          |              | 100   |
|          |              | 60    |
|          |              | 40    |
|          |              | 80    |
|          |              | 20    |
| 12       |              | 100   |
|          |              | 100   |
|          |              | 60    |
|          |              | 40    |

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1 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

8 A. I think -- I'm not sure. The

9 company has 45 employees or so. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[illegible]

\_\_\_\_\_

[REDACTED] [REDACTED]

4 MR. COOPER: I'm going to object to  
5 this line of questioning and I'm actually going  
6 to instruct you not to answer. If you want to  
7 discuss it off the record we can, but right now  
8 my instruction is I don't see the relevance  
9 here.

14 Q. Are you familiar with the TCP/IP  
15 protocol suite?

17 Q. What is the TCP/IP protocol suite?

19 protocol addressing scheme by which packets can  
20 be addressed to reach another computer. The TCP  
21 part is the transmission control protocol. It  
22 is a protocol that let's you take the ability to  
23 send packets over an unreliable connection and  
24 turn that into a reliable data stream between  
25 two machines.

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1           Q.       What is the lowest protocol of the  
2   TCP/IP suite?

3           A.       What is the lowest protocol?

4           Q.       The lowest level protocol of the  
5   TCP/IP suite?

6           A.       There are two pieces to it and  
7   they're doing different things, so I'm not sure  
8   the question makes sense. The IP part is  
9   responsible for addressing. The TCP part is  
10   responsible for creating a channel, and they can  
11   in fact be separated. Other transmission  
12   protocols can use IP and other addressing  
13   protocols can be used with TCP.

14          Q.       Among the experts in data  
15   networking security, isn't the TCP/IP suite  
16   schema, a layered protocol schema?

17          A.       It in turn sits on top of other  
18   layers.

19          Q.       So my question is would an expert  
20   in data networking security consider the TCP/IP  
21   suite to be a layered protocol suite?

22          A.       I don't know. The question as  
23   framed doesn't make sense to me.

24          Q.       So if I asked a data networking  
25   expert what is the lowest layer in the TCP/IP

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1 suite would that be answered, does that question  
2 make sense?

3 A. I don't think so.

4 Q. You don't think it does, okay.  
5 What does ARP stand for?

6 A. ARP are tables within routers that  
7 determine how packets are routed.

8 Q. What do the initials ARP stand for?

9 A. I don't remember.

10 Q. What does ICNP stand for?

11 A. ICNP is a kind of packet that is  
12 used for certain very simple -- it's a protocol  
13 for transmitting packets for carrying out very  
14 simple tasks, notably the ping task.

15 Q. What does ICNP stand for?

16 A. I don't remember.

17 Q. What does CIDR stand for?

18 A. I don't know.

19 Q. How many bits are in an IPV 4  
20 address?

21 A. 4 blocks, each -- 32 bits.

22 Q. You calculated that?

23 A. I did.

24 Q. Can you explain the TCP connection  
25 setup?

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1           A.       Sure. There's a handshaking phase  
2     during which the two parties exchange certain  
3     packets that help them become aware of each  
4     other, and then a sliding window is established  
5     which is a number of packets that are allowed to  
6     be en route without yet having been reliably  
7     received.

8                   After that, the packets are  
9     transmitted with sequence numbers and  
10    individually acknowledged, where the maximum  
11    number of packets that are allowed to be  
12    unacknowledged are determined by the sliding  
13    window.

14          Q.       So what is the first message sent  
15    in a TCP open?

16          A.       I don't remember the format of the  
17    first packets.

18          Q.       What is the return packet?

19          A.       I don't remember the  
20    packet-for-packet protocol.

21          Q.       What is the concept of half open as  
22    it relates to TCP?

23          A.       I don't remember.

24          Q.       What is the four-tuple that defines  
25    a TCP message?

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1 A. I don't know.

2 Q. How is a TCP connection closed?

3 A. Well, if it's formerly closed  
4 usually one party or the other sends a closing  
5 message. It can be informally closed when one  
6 party drops off for a period long enough for a  
7 time out.

8 Q. What is the closing message?

9 A. It is a message that specifies that  
10 the connection should be closed.

11 Q. Does it have a name in the TCP  
12 protocols?

13 A. I don't remember the names.

14 Q. What is the difference between UDP  
15 and TCP?

16 A. UDP is not a reliable transmission  
17 protocol. Under the UDP protocol the packets  
18 are sent but there is no provision for requiring  
19 acknowledgment, in particular there's no  
20 provision for retransmitting packets that are  
21 missing from a sequence.

22 Q. Is there error correction in UDP?

23 A. No, there's not.

24 Q. What other networking  
25 characteristics that you are aware of

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1 distinguish UDP from TCP, other than what you've  
2 just identified?

3 A. I think that's the big part, which  
4 is that whereas TCP creates a sequence of  
5 acknowledged and reliably transmitted packets,  
6 UDP does not.

7 Q. Can you explain?

8 A. UDP is closer to just simply  
9 addressing the packet and sending it. In TCP  
10 the packet is addressed and is given a sequence  
11 number. The recipient of the packet, CRC,  
12 checks it, then checks to make sure whether it  
13 has all the packets in the sequence and  
14 acknowledges the ones that it receives.

15 If the sender notices that a  
16 particular packet in the sequence has not been  
17 acknowledged it retransmits it.

18 Q. I want to ask you some questions  
19 about network address translation, okay?

20 A. Okay.

21 Q. I forget if you told me you were an  
22 expert on that?

23 A. I said that my expertise includes  
24 NAT.

25 Q. I'm not sure I really understand

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1     what that means. I'm going to tell you that I'm  
2     going to ask you on a stand in front of a jury  
3     do you consider yourself an expert on NAT? I'd  
4     like to know what you're going to tell the jury?

5           A.       I will tell the jury I'm an expert  
6     in computer science, including NAT.

7           Q.       Isn't computer science and NAT two  
8     different concepts?

9           A.       No. Computer science is a parent  
10    field that includes computer science networking,  
11    which includes NAT.

12          Q.       So are you telling me that you're  
13    an expert in all of the fields that are  
14    encompassed within computer science?

15          A.       Well, what I'm saying there is I'm  
16    an expert in computer science, including in NAT.  
17    I've been qualified as an expert in computer  
18    science in federal court.

19          Q.       How about the subfield of NAT, have  
20    you been qualified as an expert in the subfield  
21    of NAT?

22          A.       No.

23          Q.       Do you consider yourself an expert  
24    in the subfield of NAT?

25          A.       Yes.



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1 Q. So we talked earlier about when NAT  
2 came into existence and you answered some of  
3 those questions.

4 Did the concept of packet  
5 forwarding exist before NAT?

6 A. Yes.

7 Q. So there's a difference between NAT  
8 and packet forwarding?

9 A. Yes. NAT is something that can be  
10 done with either forwarded packets or under  
11 other circumstances as well.

12 Q. If a packet is forwarded without  
13 NAT what does that mean?

14 A. It means that it is forwarded, but  
15 the IP address of the originating computer  
16 continues to be identified as the source IP  
17 address in the packet.

18 Q. Are there any changes to the packet  
19 if the packet is forwarded? Let me withdraw  
20 that.

21 Are there any changes to a TCP/IP  
22 packet if the packet is forwarded without NAT?

23 A. No.

24 Q. So before NAT, the concept of  
25 packet forwarding would have entailed forwarding

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1 a packet without doing any translation or  
2 changes to the packet?

3 A. Well, subject to one caveat, which  
4 is that even if you're forwarding without NAT  
5 you may apply filtering rules which will cause  
6 you to drop some packets.

7 Q. I want to talk about just  
8 forwarding the packets. Let's assume we're  
9 before 1994 so NAT doesn't exist, or we'll  
10 pretend NAT doesn't exist, and we're talking  
11 about packet forwarding, that concept, as it  
12 would have existed in 1994.

13 A. And your excluding packet filter?

14 Q. Yes. I want to talk about a simple  
15 router, it has no rules on it whatsoever other  
16 than to route. Such a device existed, correct?

17 A. Yes.

18 Q. So if the packet was forwarded  
19 without packet filtering, that packet would go  
20 from ingress to egress unchanged?

21 A. Yes. Essentially a copy of it is  
22 made on the new interface.

23 Q. Now I want to talk to you about  
24 NAT. NAT stands for network address  
25 translation, correct?

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1 A. Yes.

2 Q. I think, as you described in your  
3 report, the network address that's being  
4 translated is the source address of the sending  
5 host, correct?

6 A. Source address or port. I'm sorry,  
7 the source address of the host, yes, and/or  
8 port.

9 Q. And/or port?

10 A. Yes.

11 Q. There's a concept called port  
12 address translation as well?

13 A. Yes.

14 Q. Can you explain the difference?

15 A. In network address translation the  
16 source address of the packet is rewritten.  
17 Typically, in modern devices also as part of  
18 that the port is rewritten. You can also do  
19 port address translation in which you only  
20 rewrite the port, but the business applications  
21 of it are much smaller.

22 Q. Are there any applications that you  
23 are aware of that could not operate with packet  
24 forwarding in 1994?

25 A. You're talking about software

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1 running on the work station behind the firewall  
2 when you say applications?

3 Q. We don't even have to have a  
4 firewall in our scenario. I'm talking about  
5 applications that could run in a networked  
6 environment in 1994, okay?

7 A. Okay.

8 Q. I think you identified some in your  
9 report, didn't you?

10 A. Yes.

11 Q. What are some of those?

12 A. FTP, Telnet.

13 Q. FTP stands for file transfer  
14 protocol?

15 A. Correct.

16 Q. Telnet doesn't stand for anything  
17 other than Telnet?

18 A. That's right.

19 Q. Did you identify anything else?

20 A. Gopher. I think I identified HTTP  
21 as well, so web browser.

22 Q. What does HTTP stand for?

23 A. Hypertext transfer protocol.

24 Q. In 1994 these various names that  
25 we're using, they're commonly referred to as

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1 applications or services, correct?

2 A. Well, those two things are not the  
3 same. Yes, there were applications that carried  
4 out those functions.

5 Q. So my question is if you have a  
6 device that is only accomplishing packet  
7 forwarding, were there any limitations on any of  
8 the services we just identified in operating  
9 with a packet forwarding device?

10 A. If the question is could all of  
11 those things operate on a network that included  
12 packet forwarding, I think the answer is yes.

13 Q. I want to ask you about NAT.

14 A. Okay.

15 Q. NAT, we're doing some translation  
16 of the addressing of a packet, aren't we?

17 A. Yes.

18 Q. We're talking about TCP/IP packets,  
19 okay?

20 A. Okay.

21 Q. Are there applications that will  
22 not work through a NAT device?

23 A. Of the subset that we talked about  
24 or are there at all?

25 Q. Let's start with the subset we

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1 talked about.

2 A. I think all of those -- well, FTP,  
3 there is a form of FTP called active FTP, and in  
4 active FTP when you connect to the server it  
5 initiates a connection back to you.

6 Any kind of a firewall blocking  
7 incoming connections prevents that, whether it's  
8 a NAT firewall or not. There is a form of FTP  
9 called passive FTP which does not require a  
10 connection back.

11 Q. So that's one that would operate in  
12 a simple packet forwarding pre-1994 that  
13 wouldn't operate with NAT?

14 A. Well, whether it would operate with  
15 NAT, in practice scenarios involving NAT it  
16 would probably prevent it from working.

17 Q. There's something else about FTP  
18 that complicates it in using it with NAT, isn't  
19 there?

20 A. That's the big thing I can think  
21 of.

22 Q. Isn't it true that in an FTP  
23 connection the application data has embedded IP  
24 addresses?

25 A. The application data has embedded

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1 IP addresses. So the application level  
2 protocol, is there an IP address, so yes and  
3 that's why the active -- it was typically used  
4 for active FTP.

5 Q. I'm going to read a sentence to you  
6 from Mr. Cheswick's book, the second edition,  
7 "Many applications simply won't work through  
8 NATs." Do you agree with that?

9 A. I'm sure it's true, yeah.

10 Q. "The application data contains  
11 embedded IP addresses (see, for example, the  
12 description of FTP in section 3.4.2)."

13 Do you agree with that?

14 A. Yes. Wait, wait, step back. I  
15 agree that was true at the time the book was  
16 written.

17 Q. You believe that was only true in  
18 1994?

19 A. I think that currently NATs are now  
20 so ubiquitous that there are relatively few  
21 applications that exist now that intend for  
22 people to connect client software to a server on  
23 the internet that will not work through NAT.

24 Q. I'm going to suggest to you that  
25 I'm reading from a book copyrighted 2003. I'm

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1 going to let counsel look at it so he knows I'm  
2 not misrepresenting that to you.

3 MR. COOPER: Can this be an  
4 exhibit? Is there a reason why we can't make  
5 this an exhibit?

6 MR. MCGREARY: There isn't. It's  
7 just subject to logistics, and I'll talk to you  
8 about it off the record.

9 MR. COOPER: What are you asking me  
10 to do?

11 THE WITNESS: You can show it to me  
12 if you want to.

13 MR. COOPER: I can have copies  
14 made. I would like to take a look at it and  
15 consider this approach of using the book and  
16 asking Christian to answer questions on some  
17 verbal quote.

18 MR. MCGREARY: Let's go off the  
19 record.

20 (Off the record at 11:19 a.m.)

21 (Resumed at 11:22 a.m.)

22 Q. I want you to tell me if in your  
23 expertise you agree or disagree with the  
24 statements I'm about to say to you, okay?

25 A. Okay. The time frame for the



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1 questions is are these statements true today,  
2 are they true in 2003, or are they true when?

3 Q. I'll specify as I ask my question.  
4 Is this statement true today, "Many applications  
5 simply won't work through NATs"?

6 A. Some applications won't work  
7 through NATs, whether it qualifies as many I  
8 don't know. The vast majority of applications  
9 intended to communicate with a server on the  
10 internet will work through NATs.

11 Q. What applications are you aware of  
12 today that will not work through NATs?

13 A. Well, in theory you could still use  
14 active FTP, that won't work through a NAT, and  
15 certainly there was a time when some kinds of  
16 VPNs wouldn't work through NATs. I can't think  
17 of many because so many businesses use  
18 NAT-based, and almost all homes use NAT-based  
19 firewalls.

20 Q. Tell me if you agree with this  
21 statement with respect to NAT, "Incoming calls  
22 to dynamic ports don't work very well either.  
23 Most NAT boxes will let you route traffic to  
24 specific static hosts and ports that can't cope  
25 with arbitrary application protocols"?

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1           A.       That's a way of saying -- so yes,  
2     that statement is generally true in that the  
3     purpose of the NAT firewall in many case is to  
4     prevent incoming connections, that is one of its  
5     benefits, not exclusive to NAT, but when people  
6     deploy a NAT firewall frequently part of what  
7     they're doing is preventing incoming  
8     connections, and then that means you have  
9     prevented incoming connections, so tasks that  
10    involve incoming connections are hampered.

11          Q.       The statement is true then?

12          A.       The statement is true subject to  
13    certain conditions. Yes, incoming connections  
14    are hampered on NATs by design.

15          Q.       The statement isn't the incoming  
16    connections. It says incoming calls to dynamic  
17    ports don't work very well either. Is that  
18    statement true?

19          A.       Yes, an incoming call to a dynamic  
20    port is an incoming connections.

21          Q.       Understood. There are other  
22    incoming connections, correct? There are other  
23    incoming connections that are not?

24          A.       To a dynamic port.

25          Q.       Exactly.

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1           A.       Incoming connections to fixed ports  
2     can be managed un-renounced, yes.

3           Q.       Does that make it different than a  
4     box that is implementing simple IP forwarding  
5     without NAT?

6           A.       Yes.

7           Q.       What about applications that  
8     require encryption of application level data,  
9     can a NAT box handle that?

10          A.       It depends. In principle, yes.  
11     For example, Skype can be used to do encrypted  
12     phone calls and it can be run through a NAT.  
13     You can encrypt your e-mail and send it through  
14     a NAT. It is possible to have some scenarios in  
15     which you are encrypting in a manner which  
16     becomes more difficult with a NAT.

17                   In particular, if you are  
18     encrypting the addressing information for  
19     transmission to something beyond a firewall,  
20     because since the packet has to be rewritten  
21     that becomes more difficult if the data are  
22     encrypted, or if there is encryption that  
23     depends on the addressing information.

24          Q.       Does that problem apply to packet  
25     forwarding as it existed in 1994?

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1           A.       It might. There are some scenarios  
2   in which that problem would be exacerbated by  
3   NAT.

4           Q.       In packet forwarding is the  
5   application mobile data addressing a need to be  
6   rewritten?

7           A.       It does not.

8           Q.       So that part of it wouldn't be a  
9   problem for packet forwarding in 1994, correct?

10          A.       I agree.

11          Q.       You have on page 8 a diagram?

12          A.       Yes.

13          Q.       Did you draw that diagram?

14          A.       Yes.

15          Q.       That was based on your own  
16   understanding of what happens in this firewall  
17   that you have shown here?

18          A.       Yes.

19          Q.       You showed two connections, a  
20   connection 1 and connection 2, right?

21          A.       Yes.

22          Q.       Are those TCP/IP connections?

23          A.       Yes.

24          Q.       You have this diagram where you  
25   show this arrow that kind of humps up and then

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1 down and you write packets relayed between  
2 connections, do you see that?

3 A. I do.

4 Q. Is it the packet that's relayed  
5 between the connection?

6 A. It's actually the data of the  
7 packet.

8 Q. That sounds kind of wrong, isn't  
9 it?

10 A. It's slightly more precise to say  
11 the data of the packet.

12 Q. It's actually precise to say the  
13 data is what's relayed and imprecise to say the  
14 packet is relayed, isn't it?

15 A. In networking people talk about the  
16 packet being relayed across connections. It's  
17 certainly more precise to say the data of the  
18 packets are relayed.

19 Q. Is the packet relayed?

20 A. It's common parlance to say that it  
21 is, but it's more precise to say that the data  
22 are.

23 Q. The data is relayed?

24 A. The data are relayed.

25 Q. The data are relayed. Thank you.

1 You want to be precise, right?

2 A. I try.

3 Q. Why do you have a hump there?

4 A. Because that way I could fit the  
5 text and make it clear that it was connected to  
6 the arrow.

7 Q. That's the only reason?

8 A. Yeah. Was it perceived as  
9 nefarious somehow?

10 Q. I just didn't know what it was.

11 A. I couldn't fit packets relayed  
12 between the connections inside the box without  
13 also crowding up against the firewall and make  
14 it unclear which was which.

15 Q. I want to direct your attention to  
16 4.3. You tell us, "Another approach is for the  
17 firewall not to create its own connections to  
18 each computer, but simply to forward the packets  
19 onward to their appropriate destinations,  
20 examining them as appropriate." Do you see that  
21 sentence?

22 A. I do.

23 Q. If we use the definition of forward  
24 to be that the packet is unchanged either in  
25 addressing or any other way, does that sentence

1 make sense?

2 A. First of all, I don't accept that  
3 as the premise for what it means to forward, but  
4 yes. In other words, that's not what I meant.  
5 But even so, you can have a scenario in which a  
6 packet is taken from one interface and put on  
7 another interface and retransmitted.

8 Q. I understand that. The question I  
9 have is would that provide a firewall?

10 A. If you examine the packets along  
11 the way then you are performing some firewalling  
12 functionality.

13 Q. How is the packet examined if it's  
14 simply forwarded, that's the part I'm not  
15 understanding, one of the parts?

16 A. I think the problem there is that  
17 you've chosen a definition of forwarding which  
18 is not the definition that I'm using here.

19 Q. What examines the packet as  
20 appropriate. You just had a term saying  
21 examining them is appropriate, what's  
22 appropriate and what doesn't in your sentence  
23 here?

24 A. If it's a packet filtering firewall  
25 you have software that examines the packets. As

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1 appropriate means insofar as that is desired by  
2 the system administrator.

3 Q. Is that what you were talking about  
4 here, packet filtering firewall?

5 A. Yes.

6 Q. Your next diagram --

7 A. Let me back up to say packet  
8 filtering is one of the options here.

9 Q. You talked about two approaches?

10 A. Yes.

11 Q. I'm talking about the second  
12 approach. Are you talking about in your second  
13 approach a packet filtering firewall?

14 A. My answer is a packet filtering  
15 firewall would be an example.

16 Q. What is another example?

17 A. Where you forward the packets on  
18 but you don't filter them.

19 Q. What is your definition of forward  
20 in that scenario?

21 A. Sending the packet onward without  
22 creating a new connection.

23 Q. Without creating a new TCP/IP  
24 connection?

25 A. Yes.



1           Q.       So it wouldn't matter whether or  
2     not the packet is changed in any way, as long as  
3     in your view -- withdrawn.

4                    The only thing that is required to  
5     use the term forwarding is that there is not a  
6     second TCP/IP connection?

7           A.       If you send the packet onward  
8     without a TCP/IP connection that is forwarding  
9     the packet.

10          Q.       Now I want to point you to the  
11     diagram. By the way, what year are we talking  
12     about for these approaches to a firewall that  
13     you've talked about on page 8 and 9 of your  
14     expert report, which is marked as 192?

15          A.       So these diagrams are very high  
16     level and so they apply both in the '94 to '96  
17     time frame, but they also apply today.

18          Q.       Let me look at this diagram that  
19     you have referenced here on the top of page 9 of  
20     your expert report, which we marked as I believe  
21     192.

22                    You show what I believe are two  
23     hosts, a square box with the words packets  
24     forwarded and firewall in the box and then an  
25     arrow pointing back and forth between the two

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1 hosts, right?

2 A. Yes.

3 Q. A very simple diagram, right?

4 A. Yes. The preceding diagram was  
5 also not very complex.

6 Q. I noticed that in the preceding  
7 diagram however you have two boxes internal to  
8 the bigger box labeled "Firewall," and I'm  
9 assuming that's what denoted the connections, is  
10 that correct?

11 A. Yes.

12 Q. You don't denote any connections in  
13 the packet forwarded firewall?

14 A. That's right.

15 Q. So is it your testimony that in  
16 this scenario there is no connections at the  
17 firewall, no TCP/IP connections at the firewall?

18 A. That's right.

19 MR. MCGREARY: Could you read the  
20 question and answer back.

21 (Record read.)

22 Q. What kind of firewall would  
23 implement what you have diagrammed here?

24 A. Any kind of forwarding-based  
25 firewall, including a firewall based on NAT

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1 forwarding. There is no TCP/IP connection  
2 initiated or terminated from the firewall as  
3 part of a connection from a work station to a  
4 server on the internet in that scenario.

5 Q. Earlier I asked you what four-tuple  
6 defined a NAT connection, do you remember that?

7 A. Was it for NAT? Anyway, I don't  
8 remember the exact question.

9 Q. You make an excellent point. I  
10 asked you what four-tuple defined a TCP/IP  
11 connection, do you recall that?

12 A. Yeah, I do.

13 Q. Were you able to tell me?

14 A. I was not.

15 Q. I want you to assume that the  
16 four-tuple that defines a TCP/IP connection  
17 is -- you know what a four-tuple is, right?

18 A. Yes.

19 Q. What is it?

20 A. It is a set of four items.

21 Q. I want you to assume that the  
22 four-tuple that defines a TCP connection is the  
23 local host, local port, remote host, remote  
24 port?

25 A. Yes.

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1 Q. Do you understand that?

2 A. Yes, I do.

3 Q. By local host and remote host, I'm  
4 talking about the address of the local host and  
5 the remote host, do you understand that?

6 A. I do.

7 Q. The port is -- well you tell me  
8 what you understand a port to me?

9 A. A port is an abstraction that is  
10 imagined as a large number of individual ports.  
11 It's really just an abstraction, it's a number  
12 that helps you split different connections from  
13 each other.

14 Q. Now assuming that those four-tuples  
15 define a TCP connection, could you look at your  
16 diagram on page 9?

17 A. Yes.

18 Q. Isn't it true that there is a TCP  
19 connection between the local host, which I'll  
20 call the one on the left, and what you labeled  
21 the firewall, and then another TCP connection  
22 between what you've labeled as firewall and the  
23 remote host?

24 A. Yes.

25 MR. MCGREARY: Let's take a break.

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1 (Short break taken at 11:38 p.m.)

2 (Resumed at 11:46 a.m.)

3 Q. We've been talking about NAT,  
4 network address translation, and things called  
5 NAT devices and NAT boxes, right?

6 A. Yes.

7 Q. What actually on a device  
8 accomplishes network address translation?

9 A. It depends. As a general rule it  
10 is a part of the kernel that rewrites packets to  
11 change their addresses.

12 Q. By kernel you're talking about the  
13 kernel of the operating system?

14 A. Yes.

15 Q. You said it was as a general rule?

16 A. Yes.

17 Q. Why do you say that's a general  
18 rule?

19 A. Because you can -- it's a little  
20 bit of a terminology question. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]

10 Q. All I asked you is why it's a  
11 general rule?

12 A. I think you asked me why did I say  
13 it is a general rule. The answer is because  
14 there are scenarios in which people use the term  
15 NAT. The thing that would be making sure that  
16 the packet has a new address does not involve  
17 rewriting the packet in the kernel.

18 Q. In any event, in some piece of  
19 software running somewhere that's rewriting the  
20 packet address?

21 A. Almost. Not necessarily. I'm  
22 sorry this is a little complicated, I'm not  
23 trying to make this complicated, it just is.

24 Q. I do not find it complicated.

25 A. If you look at the application

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1 proxy scenario it receives a connection from the  
2 workstation and then it has an outgoing  
3 connection to the server.

4 Doing only that and then it does  
5 something, whatever, in the proxy, that will  
6 naturally result in the IP address of the  
7 outgoing packet being the firewall's IP address,  
8 because the firewall has the TCP connection to  
9 the server.

10 In other words, the packet is not  
11 actively rewritten in the scenario, it's just  
12 that a new connection is created that happens to  
13 have the IP address to the firewall.

14 If you were forwarding packets then  
15 the packets are not -- there is no new  
16 connection that is naturally creating an IP  
17 address from the firewall and therefore the  
18 packets have to be rewritten.

19 Q. And that's done in the kernel?

20 A. And that is done in the kernel. It  
21 is done either in kernel or a kernel module.

22 Q. Whether or not the address is being  
23 translated at the kernel or at the application  
24 layer, there is some process somewhere that's  
25 causing that address to be translated. Somebody

1 has to program it in some fashion, right?

2 A. Well, if you look at the  
3 application proxy scenario there's no separate  
4 step to make that happen. In fact, a separate  
5 step is required in order to make the opposite  
6 happen.

7 Naturally you receive a connection,  
8 you open a new connection to the server, you  
9 take the data from the old connection and send  
10 it to the new connection the IP address of the  
11 firewall will be represented.

12 Q. I understand. When there's no  
13 application layer proxy then there has to be a  
14 separate instruction to do that transaction?

15 A. Yes.

16 Q. That's what you were calling the  
17 general scenario?

18 A. I don't remember, but that is a  
19 common scenario.

20 Q. You looked at your report -- in the  
21 OS operating system, yes, for your report?

22 A. Yes.

23 Q. Which version?

24 A. We looked at manuals for a number  
25 of versions, I don't remember exactly which



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1 ones. [REDACTED]

2 [REDACTED]

3 Q. That was provided to you by  
4 Fortinet?

5 A. Yes.

6 Q. You looked at a number of FortiGate  
7 devices?

8 A. Yes. We examined I think two  
9 devices and examined configuration files for  
10 more.

11 Q. [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED] [REDACTED] [REDACTED]

16 [REDACTED]

17 [REDACTED] [REDACTED]

18 [REDACTED]

19 [REDACTED] [REDACTED]

20 [REDACTED] [REDACTED] [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED] [REDACTED]

24 [REDACTED]

25 [REDACTED]

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[REDACTED]

20 Q. Now, in 1994 -- let's go back to  
21 1993. If I had a host running a Unix-based  
22 operating system as it existed, no special  
23 configuration, and it opened a TCP/IP packet and  
24 it looked at the destination IP address, and  
25 that destination IP address was not the

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1 destination IP address of that host, what would  
2 that device do with that packet?

3 A. Assuming nothing else, it would  
4 discard it.

5 Q. I want you to assume it had a  
6 routing table?

7 A. Okay.

8 Q. Then what would it do?

9 A. If it could route the packet based  
10 on the interfaces it has and the routing table  
11 it has, it would route the packet.

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

24 [REDACTED]

25 [REDACTED]

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[illegible]

23 Q. When Mr. Cooper took the Cheswick  
24 book out to make copies of it did you look at  
25 it?

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1           A.       I did not.

2           Q.       Did he read you any portions of it?

3                   MR. COOPER: I'm going to object to  
4 the question.

5                   MR. MCGREARY: Withdrawn.

6           Q.       I believe you told me earlier today  
7 that you did not anticipate giving any testimony  
8 regarding the meaning of claims, is that right?

9           A.       Regarding claim construction, yes.

10          Q.       Do you draw a distinction between  
11 claim construction and meaning of the claims?

12          A.       I consider claim construction to be  
13 a question of what do specific claim terms mean.  
14 Meaning of the claims is just a little bit  
15 broader, so I just want to be clear about what  
16 I'm saying I don't expect to testify about.

17                   I do expect to testify about  
18 whether or not the accused devices do certain  
19 things that the claims say and that inherently  
20 involves some discussion about what the words  
21 mean.

22          Q.       I want to be clear because I'm not  
23 so sure we're on the same page. I want you to  
24 turn to page 15.

25          A.       Yes.

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1 Q. 5.3.4?

2 A. I see that.

3 Q. You write in the second sentence,  
4 "Then, the limitation requires 'else dropping  
5 the packet', which mean that if there is no  
6 process assigned to the port number, the packet  
7 must be dropped." I read that right, correct?

8 A. Yes.

9 Q. You intend to testify with respect  
10 to the meaning of "else dropping the packet" in  
11 this context?

12 A. Yes.

13 Q. But you don't consider that claim  
14 construction?

15 A. I don't. To me that's  
16 interpreting -- that's simply reading the  
17 language of the claim and applying it.

18 Q. You say which means, right?

19 A. Yes. The language in the claim has  
20 to mean something.

21 Q. You further write, "This language  
22 claims that the firewall, upon analyzing an  
23 incoming packet, makes a decision with only two  
24 choices."

25 So here you're explaining what the

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1 meaning of the scope of the claim is, isn't that  
2 right?

3 A. I'm not sure what else to tell you  
4 other than it says what it says, and I plan to  
5 testify to that.

6 Q. In 5.3.5 you write, "Ordinarily, an  
7 accused product does not escape infringement by  
8 virtue of performing steps or including elements  
9 in addition to those required for infringement,"  
10 do you see that sentence?

11 A. I do.

12 Q. Is that your understanding or was  
13 that given to you by someone?

14 A. That is my understanding.

15 Q. That is your understanding. That  
16 was given to you by counsel?

17 A. It was not.

18 Q. Are you a lawyer?

19 A. I am not.

20 Q. Are you an expert in opining as to  
21 the law of claim construction?

22 A. I am not.

23 Q. Your next sentence is, "It can do  
24 so, however, if a limitation of the claim is a  
25 'negative limitation' - one that claims not

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1     doing something or not including something," do  
2     you see that?

3             A.       I do.

4             Q.       Is that your understanding?

5             A.       It is my understanding.

6             Q.       Was that given to you by counsel?

7                     MR. COOPER:  Objection.  The same  
8     objection that I've stated previously.

9                     MR. MCGREARY:  Let's address this  
10    one objection on the record.  I think fairly  
11    that if he's relying on a communication that you  
12    gave him in his report it's open to inquiry, and  
13    I'll let you make the call.  I think the  
14    understanding has been communications between  
15    counsel are privileged and I won't inquire into  
16    them, but to the extent that he's actually  
17    relying on it I think is fair game.

18                    MR. COOPER:  Agreed.  If the  
19    question is did you rely on a specific  
20    communication from counsel for something in the  
21    report, that's fair game.  If it's any other  
22    communication between us and the witness that's  
23    subject to the stipulation and my objection  
24    would stand.

25                    MR. MCGREARY:  I agree.  I'll



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1 rephrase.

2 Q. So your statement, "If it can do  
3 so, however, if a limitation of the claim is a  
4 negative limitation - one that claims not doing  
5 something or not including something."

6 Is that a statement that you relied  
7 upon that was communicated to you by counsel?

8 A. By counsel in this matter or  
9 counsel ever?

10 Q. Let's start with this matter.

11 A. I don't think I relied on counsel  
12 from this matter in order to write that text.

13 Q. Was that communicated to you by  
14 some other counsel in some other matter?

15 A. Over the years I've done some  
16 patent cases and this is an understanding that  
17 I've developed. I developed it through some  
18 combination of reading materials and talking  
19 with attorneys.

20 Q. You don't consider yourself to be  
21 an expert in patent claim construction, do you?

22 A. I do not.

23 Q. You're not a patent attorney?

24 A. I am not.

25 Q. Is it true also that 5.3.6 opines

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1 as to your meaning that you ascribe to claims  
2 10, 43 and 29?

3 A. 5.3.6 includes my understanding of  
4 claims 10, 43 and 29.

5 Q. And that understanding comes, at  
6 least in part, from what you set forth in 5.3.5?

7 A. It's related to it.

8 Q. You've used the word forward packet  
9 in your report throughout?

10 A. Can you say that again, I just  
11 didn't hear it.

12 Q. You use the word forward packet in  
13 your report throughout, is that correct?

14 A. I use it in several places, yes.

15 Q. Can you tell me the definition of  
16 forward that you ascribe in this report?

17 A. For a firewall it's transmitting a  
18 packet without creating a new TCP connection.

19 Q. It would not exclude if that packet  
20 were changed in making a transmission?

21 A. Correct.

22 Q. Would your opinion change if the  
23 understanding of forward packet were to include  
24 only packets that were not changed in making the  
25 transmission through the firewall?

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4           Q.       Do you set forth in your report any  
5   alternative conclusions based upon a different  
6   understanding of forward the packet?

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1 A. Yes.

2 Q. Application layer protocol?

3 A. Yes.

4 Q. How about e-mail, is that an  
5 application layer protocol?

6 A. E-mail is not. SMTP, which is the  
7 protocol by which e-mail is transferred is one.  
8 IMAP and POP are e-mail protocols by which  
9 e-mail is retrieved.

10 Q. Let's take them one at a time. Is  
11 SMTP an application layer protocol?

12 A. Yes.

13 Q. How about IMAP?

14 A. Yes.

15 Q. How about POP?

16 A. Yes.

17 Q. Are those the three most dominant  
18 e-mail protocols in use today?

19 A. Probably the exchange protocol is  
20 also very big.

21 Q. Is that an application layer  
22 protocol?

23 A. Yes.

24 Q. Of the percentage of network  
25 traffic, what percentage do you think is HTTP or

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1       HTTPS?

2               A.       I don't know. I also think it  
3 depends on the time of day.

4               Q.       HTTP is the common web browsing  
5 protocol, right?

6               A.       Yes.

7               Q.       You would agree that it's a large  
8 percentage of the internet traffic?

9               A.       Is it on a  
10 transaction-by-transaction basis, yes; but I  
11 don't know how on a by volume basis. For  
12 example, during prime time hours Netflix  
13 accounts for about 30 percent of all internet  
14 usage, and that's streaming video, so it just  
15 depends on exactly on what you mean. I agree  
16 that HTTP is a very common, very heavily used  
17 protocol.

18              Q.       What streaming video protocol does  
19 Netflix use?

20              A.       They are built on top of  
21 Microsoft's Silverlight platform. I actually  
22 don't know what they are using.

23              Q.       Is that protocol an application  
24 layer protocol?

25              A.       It almost certainly is, yes.

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1           Q.       How about VPN, virtual private  
2   network. Are those protocols application layer  
3   protocols?

4           A.       Generally, yes.

5           Q.       Have I covered the common protocols  
6   that are in use in network traffic today as you  
7   understand it, are there other protocols that  
8   are common that are in use today?

9           A.       In each case when there is an  
10   application layer protocol there are also other  
11   protocols in play below it in the layers. I  
12   guess I'll just agree, I think we have discussed  
13   many of the most commonly used protocols that  
14   are application layer protocols.

15          Q.       If I want to apply security to  
16   those application layer protocols such as virus  
17   scanning or web filtering, what type of firewall  
18   device do I need to use?

19          A.       It depends. If you want to filter  
20   the application layer content the most effective  
21   way to do it is to filter at the application  
22   layer.

23          Q.       So I would use an application layer  
24   firewall?

25          A.       That let's you do some kinds of

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1 firewalling that are otherwise not possible.

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**[REDACTED]**

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**\_\_\_\_\_**

\_\_\_\_\_

**[REDACTED]**

██████████ ███████████ ███████████

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8

Q. You disagree with that statement?

9

A. I disagree with that statement.

10

Q. Is that something you covered in

11

your report or is that based on your expertise?

12

A. That's based on my expertise. I

13

mean I discuss this subject in part of my

14

report, but when I was answering the question

15

just now it was just based on my expertise.

16

Q. What are configuration files?

17

A. Configuration files are files that

18

contain settings.

19

Q. What do those settings do?

20

A. It depends on what the

21

configuration file is for.

■

■

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[illegible]

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■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

7 Q. Were you given any configuration

8 files from a company called Secured?

9 A. I don't recall that.

10 Q. Are you aware that Fortinet's  
11 counsel is in possession of configuration files  
12 from a Fortinet customer known as Secured?

13 MR. COOPER: The same objection  
14 that I made previously. To the extent that it's  
15 asking for communications between Quinn Emanuel  
16 and yourself please do not answer it.

17 Q. I'm asking for your awareness?

18 A. I'm not aware of configuration  
19 files from a company called Secured.

20 Q. How about a company called EO  
21 Johnson, did you look at configuration files for  
22 a company called EO Johnson?

23 A. I did not.

24 Q. How about a company called BHI.

25 Did you look at configuration files for a

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2                    A.            I did not.

5                    A.            I do.

7           A.       He's a senior employee at Fortinet.

9 Q. Did you look at any deposition  
10 testimony from Michael Xie?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[REDACTED] [REDACTED]

| Country | Year | Value |
|---------|------|-------|
| China   | 2014 | 1.00  |
| China   | 2015 | 1.00  |
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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

13 Q. About how long would it take you to  
14 review say 3,000 configuration files?

15 A. How long?

16 Q. Yeah.

17 A. How long are the files?

18 Q. That's a good question. What are  
19 the possibilities; they can be pretty long?

20 A. They can be or they can be  
21 extremely short. They can range from one line  
22 or thousands of pages.

23 Q. Let's assume they were ticked out  
24 and it took them 300,000 pages for the 3,000  
25 files; how long would it take to review that?

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1           A.       Does review involve reading every  
2 line?

3           Q.       It involves determining whether the  
4 configuration files would implement an  
5 application layer features such as web  
6 filtering, UTM or antivirus?

7           A.       It's hard for me to say. You could  
8 be looking at one of those files -- I apologize.  
9 If those settings are either typically at the  
10 front of the file or in a predictable location  
11 within the file, then it might be quick.

12                   If you know it's always roughly in  
13 the middle it might be quick. If you have to  
14 read them line for line the whole thing it would  
15 take longer. If it's OCR-able then you could  
16 OCR them and search them, that would help.

17          Q.       Getting them as a tiff is kind of a  
18 pain?

19          A.       If they're OCR-able it's okay.

20          Q.       Does ACSII come -- you have to tiff  
21 it out if you have an ACSII text, right. If you  
22 go to generate a printout of an -- strike that.

23                   If you have an ACSII file is there  
24 any reason to turn it into a tiff if you want to  
25 do searching on it?

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1           A.       Now we're well into the realm of  
2   how production works. If you have to produce it  
3   and it has to be Bates numbered and you think  
4   that it might be used in deposition, individual  
5   pages should be Bates numbered.

6           Q.       Just talking as an expert, as a  
7   forensic computer data specialist that was  
8   looking for a configuration file, would you  
9   rather have it as ACSII native or as a tiff?

10          A.       If I'm supposed to analyze  
11   something I would rather have it native.

12          Q.       What are you going to do to make a  
13   native ACSII into a tiff?

14          A.       You run it through the discovery  
15   program.

16          Q.       Did you do any eDiscovery stuff on  
17   this case, other than your expert report?  
18   Withdrawn.

19                   Was Elysium providing litigation  
20   support in this case to Fortinet?

21          A.       Let me say something which I think  
22   is helpful as to what you're asking. I don't  
23   believe Elysium was involved in document  
24   production, tiffing, those sorts of things on  
25   this case. I'm not aware of that involvement,

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1 if there was any.

2 Q. I'm going to hand you what has been  
3 marked previously as Exhibit 1 in the case. ■

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

8 Q. You do hold some U.S. patents,  
9 right?

10 A. I do.

11 Q. Have you licensed any of them?

12 A. No.

13 Q. Have they been monetized in any  
14 way?

15 A. No.

16 Q. Does Elysium hold any --

17 A. Let me back up. I need to correct  
18 both of those statements. One of our -- at  
19 least one of our patents was licensed many years  
20 ago to a startup that Mr. Creath and I were  
21 ourselves involved in that was providing a way  
22 for individuals to sell their software using our  
23 licensing system.

24 So there was a patent license on an  
25 implementation of the patent, and so that would

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1 have been a license that would have in theory  
2 been monetized.

3 Q. Other than that?

4 A. No.

5 Q. Does Elysium own any other patents,  
6 other than the patents that have been issued  
7 under your name?

8 A. No. There are some individuals at  
9 Elysium who have their own patents that they are  
10 inventors on.

11 Q. Thank you. I want to direct your  
12 attention to claim 10. Let me set this up a  
13 little bit.

14 I've handed you what has been  
15 marked as Exhibit 1, do you recognize it?

16 A. I do.

17 Q. What is it?

18 A. It appears to be a copy of the '601  
19 patent that's at issue in this case.

20 Q. Also, I believe the re-exam  
21 certificate is attached, am I right?

22 A. I see that as well.

23 Q. Do you know what a re-examination  
24 is?

25 A. I do.



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1 Q. What is your understanding of a  
2 re-examination?

3 A. The patent office re-examines the  
4 patents to determine whether or not it should  
5 remain issued, and enters into a discussion with  
6 the inventors and possibly other parties on that  
7 subject.

8 Q. You're not offering any opinion on  
9 the validity of this patent in this case, are  
10 you?

11 A. I am not.

12 [REDACTED]  
[REDACTED]

[REDACTED]

15 Q. You are aware obviously that the  
16 patent office confirmed the existing claims?

17 A. I am.

18 Q. And allowed additional claims?

19 A. Yes.

20 [REDACTED]

[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

20 Q. I'm just asking what your aware of.  
21 Today I'm finding out what your testimony might  
22 be to the jury, so if you could try to limit  
23 your answers to the questions that I'm asking I  
24 would appreciate it. Okay?

25 A. I understand.

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1 Q. Let's look at claim 10 if you will?

2 A. Yes.

3 Q. You understand this claim to be  
4 addressed to a gateway between a private network  
5 and a potentially hostile network, correct?

6 A. Yes.

■ ■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ ■ [REDACTED]

■ ■ [REDACTED]

■ [REDACTED]

■ ■ [REDACTED]

■ ■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ ■ [REDACTED]

■ ■ [REDACTED]

■ [REDACTED]

■ ■ [REDACTED]

■ ■ [REDACTED]

[illegible]

1                      A.                      No.

4 A. Yes.

8                    A.        Yes.

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| Row | Bar Length (approx. % of total width) |
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| 3   | 85                                    |
| 4   | 20                                    |
| 5   | 60                                    |
| 6   | 75                                    |
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| 12  | 85                                    |
| 13  | 90                                    |
| 14  | 95                                    |
| 15  | 80                                    |
| 16  | 95                                    |
| 17  | 10                                    |

18           A.       I do understand that he differs on  
19   that in his opinion.

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■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]

10           A.       I need to look at his report again  
11       carefully.

12           Q.       Before we do that, let me hand that  
13       to you.

14                   MR. MCGREARY: Mark that.

15                   (Exhibit 193, Defendant Fortinet,  
16       Inc.'s Identification of Preliminary Claim  
17       Constructions Pursuant to Patent Local Rule 4-2,  
18       marked for identification.)

19           Q.       Mr. Hicks, I've handed you what  
20       we've marked as Exhibit 193. Have you ever seen  
21       that document before?

22           A.       I don't remember seeing this. It's  
23       possible that I've seen it, but I don't recall.

24           Q.       Did you use it at all or rely on it  
25       in any way in preparing your report?

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2 Q. You didn't have input to any of the  
3 substance of that document, did you?

7           A.       I don't recall making any  
8   contributions to this document.

11           A.     Yes, generally.

14           A.       The data leak problem generally is  
15   the problem of essentially information escaping  
16   from the secure network into the hostile  
17   network, which you don't want to get out.  Data  
18   leak prevention is generally products for  
19   preventing that.

24 Q. Did you analyze data leak  
25 prevention in your report the all?



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1           A.       I don't believe I discussed that  
2   specifically.

20 Q. I may have asked you this before,  
21 if I did I apologize. Did you analyze any  
22 differences between the various FortiOS  
23 versions?

24 A. I don't remember whether we look  
25 at -- well, at some level yes, because at the

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1 documentation level at least we looked at  
2 different versions. I don't remember whether we  
3 did a comparison across code bases for code  
4 level differences.

5 Q. Did any of your opinions depend  
6 upon which version of FortiOS may be running on  
7 a Fortinet device with respect to  
8 non-infringement?

9 A. Let me take a look. Flipping  
10 through it, and this is also consistent with my  
11 recollection because the original Keromytis  
12 report was focused on [REDACTED].

13 I generally looked at [REDACTED]  
14 [REDACTED], both in documentation citations and in  
15 code, on the assumption that essentially if it  
16 was okay for Dr. Keromytis, if the analysis  
17 generalized there then it would generalize here.  
18 It is possible that some of those products  
19 behaved differently in different versions.

20 Q. Do you have testimony to offer that  
21 they do?

22 A. I do not.

23 Q. Do you understand that Fortinet  
24 produced any code that Mr. Keromytis did not  
25 analyze?

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1 A. Yes.

2 Q. What is the basis of your  
3 understanding?

4 A. The code that -- Elysium received a  
5 set of code and we were told that it was the  
6 same set of code that was made available to the  
7 plaintiffs. That set of code included code for  
8 other versions of FortiOS.

9 Q. Did you analyze it?

10 A. I personally did not. I don't know  
11 whether or not my colleagues did.

12 Q. Let's look at claim 19.

13 A. Yes.

14 Q. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

19 A. I do not opine that that's not  
20 true.

21 Q. In fact, you agree that it is true,  
22 right?

23 A. As far as I'm aware it's true, yes.

24 [REDACTED]

[REDACTED]

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1 A. Yes.

2 [REDACTED]

3 [REDACTED]

4 A. Yes.

5 [REDACTED]

6 A. Yes.

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 A. I do dispute that, yes.

15 Q. Does the basis of your dispute rely  
16 upon the definition of forward that you have  
17 discussed in your report?

18 A. It's a combination of what forward  
19 means and what the products do, as set forth in  
20 my report. My opinions on that are set forth in  
21 the report if that's the question.

22 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

4           A.       I don't dispute that.

5           █ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

12           A.       I don't dispute that the

13 [REDACTED]

█ [REDACTED]

15           █ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

21           A.       I don't dispute that the

22 [REDACTED]

█ [REDACTED]

24           █ [REDACTED]

█ [REDACTED]

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1 [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

9 A. I don't dispute that [REDACTED]

[REDACTED]  
[REDACTED]

12 Q. In your review of Fortinet  
13 materials, [REDACTED]

[REDACTED]  
[REDACTED]

16 [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]

23 A. Yes.

24 Q. Some of [REDACTED] that we  
25 discussed?

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1 A. Yes.

2 Q. [REDACTED]?

3 A. Yes.

4 Q. [REDACTED]?

5 A. [REDACTED] [REDACTED]

6 [REDACTED]

7 Q. I'd like to direct your attention  
8 to claim 57 which is on the last page of  
9 Exhibit 1?

10 A. Yes.

11 Q. So claim 57, it depends from claim  
12 19; you see that, right?

13 A. Yes.

14 Q. Do you understand the concept of a  
15 dependent claim?

16 A. I do.

17 Q. What is that concept, to your  
18 understanding?

19 A. That a device infringes the  
20 dependent claim if it meets all of the  
21 limitations of the independent claim, but also  
22 the limitations imposed by the dependent claim.

23 Q. So when we're talking about claim  
24 57 we're talking about claim 19 again, and all  
25 your points of dispute or non-dispute are a

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1 matter of record, so we don't need to go over  
2 that again, right?

3 A. That's fair.

4 Q. So this adds to the phrase, claim  
5 19, "Wherein, at least one proxy process is  
6 further adapted to perform a data sensitivity  
7 check on the data with each packet while  
8 transparently passing the data portion of each  
9 packet."

10 Do you understand this limitation,  
11 or do you have an understanding of this  
12 limitation?

13 A. I would say there's some ambiguity  
14 because of the term data sensitivity check. I  
15 haven't spent a lot of time on this limitation.  
16 I'm not sure, has data sensitivity check been  
17 construed by the court?

18 Q. Actually it hasn't, and Will will  
19 correct me if I'm wrong. I believe the parties  
20 will agree that the data sensitivity check will  
21 bear its ordinary meaning.

22 MR. COOPER: I don't know if that's  
23 true or not.

24 Q. Do you have an understanding, and  
25 I'll put on record that you haven't had an



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3 Do you have some understanding of  
4 what a data sensitivity check is, just  
5 generally?

7            Q.        Why don't you do that for me?

10 Q. Yes.

\_\_\_\_\_

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1     why claim 57 would not be infringed?

2             A.       I don't.

3             Q.       Okay. We can stop there.

4                     MR. COOPER: It's now 12:50 I  
5     believe.

6                     MR. MCGREARY: So what do you have?

7                     MR. COOPER: Let's go off the  
8     record.

9                     (Off the record at 12:50 p.m.)

10                    (Resumed at 1:06 p.m.)

11            Q.       Mr. Hicks, let's switch gears a  
12     little bit. We were talking earlier that you  
13     graduated from Princeton in 1997, is that right?

14            A.       That's right.

15            Q.       I saw on your CV that you did a  
16     couple of summers at AT&T?

17            A.       That's right.

18            Q.       Can you tell me what your duties  
19     were during the summers you spent at AT&T?

20            A.       I worked for AT&T Research. I  
21     worked on a number of different projects, a lot  
22     of them related to the internet which was then  
23     embarrassingly a relatively new force as  
24     something that companies were paying attention  
25     to.

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1           Q.       Who was your immediate supervisor  
2     at AT&T?

3           A.       Her name was Wenling, that's W E N  
4     L I N G, the last name is Shu, S H U.

5           Q.       I may have asked you this earlier  
6     and if I did I apologize. While you were there  
7     you didn't have an opportunity to work with  
8     Mr. Cheswick, did you?

9           A.       I did not.

10          Q.       If you could look at Exhibit 1  
11     again. Take a look at claim 19?

12          A.       Yes.

13          Q.       I believe you told me earlier that  
14     you disagreed with Mr. Keromytis with respect to  
15     what's been denoted as limitation A in claim 19,  
16     "An operating system that cannot forward any  
17     communication packet from the private network to  
18     the potentially hostile network or from the  
19     potentially hostile network to the private  
20     network," do you see that?

21          A.       I do see that.

22          Q.       I may have asked you this and I  
23     apologize if I did. Is your points of  
24     disagreement with Mr. Keromytis dependent only  
25     upon the definition of forward, or is it

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1 dependent upon the definition of forward and how  
2 it's being applied by Mr. Keromytis in his  
3 report?

4 A. It's always dangerous when you  
5 start to generalize something which you've  
6 explained with some complexity. I would say my  
7 disagreement with Mr. Keromytis is in relation  
8 to the terms modified and forward, and applying  
9 those to the particular technology here.

10 Q. If you were forced to adopt  
11 Mr. Keromytis' understanding, at least as you  
12 have read his report, would you be required to  
13 change your opinion?

14 A. Well, if I were required to adopt  
15 all of his understandings for sure. Which of  
16 his understandings would I be required to adopt  
17 in this hypothetical?

18 Q. Is your report still in front of  
19 you?

20 A. It is.

21 Q. I believe in your report you  
22 analyzed certain [REDACTED]

23 [REDACTED], is that correct?

24 A. Yes.

25 [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

7 Q. Can you iterate the three for me as  
8 you recall it?

9 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

21 A. Some of my opinions reference that,  
22 that fact, yes.

23 [REDACTED]

[REDACTED]

[REDACTED]

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1 A. Yes.

2 Q. Had you had a chance to review Mr.  
3 Keromytis' reply report before being deposed  
4 today?

5 A. Yes.

6 [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

10 A. I remember seeing a section like  
11 that in his report.

12 Q. Did you go back and look at the  
13 Fortinet materials that he was referencing?

14 A. I didn't go back and look at  
15 materials, other than insofar as he quoted them  
16 I think that I read the quotes.

17 [REDACTED]  
[REDACTED]  
[REDACTED]

20 A. No, I think that's very much  
21 situation dependent.

22 [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

\_\_\_\_\_

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■ [REDACTED]

■ [REDACTED] I haven't

3 looked at that closely, but I wouldn't be

4 surprised if that is true.

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

20 MR. COOPER: We'll do that.

21 MR. MCGREARY: Why don't we note it

22 here and do the whole transcript. [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]





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■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]  
■ [REDACTED]

8 MR. COOPER: I'm sorry to  
9 interrupt. Can we go off the record.

10 (Off the record)

11 MR. MCGREARY: The question is  
12 withdrawn.

13 Q. Can we agree on a definition for a  
14 simple NAT device, that definition being a  
15 device that only accomplishes network address  
16 translation; is that an assumption you can make?

17 A. Can I say it a little differently.  
18 We're talking about a firewall that accomplishes  
19 all of its transmissions using network address  
20 translation and not using two sessions.

21 Q. No. I want to get firewall out of  
22 our head for a second and I want to talk about a  
23 network address translator as a standalone  
24 device?

25 A. Okay. In practice, when you

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1 network address, when you NAT, you are also  
2 effectively carrying out a form of firewalling.

3 Q. Is that understanding because  
4 you're basically hiding the source addresses of  
5 the host on the private network?

6 A. Yes, and because somebody trying to  
7 reach another box on the private network, all  
8 they can try and do is send the packet to the  
9 firewall. If it isn't part of an existing  
10 session that the NAT device is tracking it won't  
11 know where to set it, and in practice you have  
12 firewalled.

13 Q. You say in practice you have  
14 firewalled because in practice you have ended up  
15 implementing some type of security?

16 A. Yes.

17 Q. In this case privacy of your source  
18 address of your host on your private network?

19 A. Well, the most important aspect of  
20 that security is that you are blocking incoming  
21 connections to the host behind the device. That  
22 is the single biggest security goal of firewall  
23 protecting work stations. There are more  
24 complicated things, but that's the biggest,  
25 probably most important thing that it does.

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1           Q.       You're blocking them because the  
2     host off the private network doesn't know the  
3     destination address, other than the NAT device?

4           A.       Even if it knows the destination  
5     address, because you can guess them for example,  
6     it does not know of an existing outgoing  
7     connection into which it can inject its packets  
8     to come back in. Even if you have an outgoing  
9     connection packets are flowing back.

10                   The NAT device allows other packets  
11    that are part of the same connection to come  
12    back, but if there is a connection that comes in  
13    that is not part of an outgoing connection, the  
14    NAT device cannot and will not send them  
15    anywhere, it does not know what to do with them.

16           Q.       Is that a product of NAT as it was  
17    developed in 1993 to '94, or is that a fire  
18    security that was added into network address  
19    translation later on?

20           A.       It turns out you get it for free.

21           Q.       So would you agree with me then  
22    that -- withdrawn.

23                   When NAT was first developed, and  
24    I'm using '93, '94 as a general time frame, its  
25    impetus was to expand the address base in IPV 4.

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1 I think we covered that earlier today, right?

2 A. Yes.

3 Q. It's impetus was not secured, they  
4 sort of got that for free?

5 A. This question goes down to the  
6 first guy who thought of NAT, which problem was  
7 he trying to solve. My understanding is he was  
8 trying to solve the scarcity of ID problem and  
9 got the security for free. Very quickly of  
10 course people realized the security benefit as  
11 well.

12 Q. I want you to imagine a NAT device  
13 that has no other security features other than  
14 network address translation as you have  
15 explained it to me today?

16 A. I understand.

17 Q. Based upon your experience in  
18 security, what percentage of gateways in what  
19 would be considered in today's standards as a  
20 secure network would implement that type of  
21 security, do you have an opinion on that?

22 A. Well, it depends on exactly what  
23 you mean by secure area, let me offer some  
24 points. Virtually, the vast majority, virtually  
25 all home networks fall under this category.

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1 They're sitting behind a device that does NAT  
2 and nothing else. It can be configured to do  
3 other things, but almost every family has a wifi  
4 router that does NAT and nothing else.

5 Many, many small offices do this.  
6 I would say it is common to do that and little,  
7 if anything else, until you get to organizations  
8 large enough at least to have an IT staff.

9 Not universally true, people might  
10 bring in an outsider to configure, people have  
11 sophisticated firewalls at home.

12 Overwhelmingly, I would say at home  
13 NAT-only devices are common in smaller offices,  
14 NAT-only devices are common. When you have on  
15 board IT staff you are more likely to start  
16 adding additional features to it.

17 Q. As you add features to a firewall  
18 you get more expansive, right?

19 A. Generally, yes.

20 Q. Generally yes, right?

21 A. Yes.

22 Q. So if the only security feature you  
23 wanted was NAT, you would generally spend for a  
24 box that only provided NAT, right?

25 A. Usually that's true, additionally

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6. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

11           A.       That depends on the policy.

[illegible]

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■ [REDACTED]

■ [REDACTED] [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

6 Q. Are you familiar with the term  
7 algorithm?

8 A. Yes.

9 Q. What is the computer science  
10 definition of an algorithm?

11 A. It's a series of steps performed by  
12 software in computer science.

13 Q. Computer science is a series of  
14 steps performed by software?

15 A. Yes.

16 Q. Algorithm outside of computer  
17 science, can I just generalize it to a series of  
18 steps?

19 A. Generally yes, I think. Some  
20 subfields would say something a little more  
21 precise, but okay.

22 Q. What are the ways to document an  
23 algorithm?

24 A. A computer science algorithm or a  
25 general algorithm?



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1 Q. Let's start with the computer  
2 science algorithm.

3 A. You can have the software itself,  
4 you can have pseudo code, you can have a diagram  
5 like a flow chart, you can describe it in pros.

6 Q. Does anything else come to mind?

7 A. That's what jumps to mind.

8 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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■ [REDACTED]

2 Q. You have a section in your report  
3 starting on page 6 that discusses prosecution  
4 history estoppel?

5 A. I do.

6 Q. Did you write that section of your  
7 report?

8 A. I believe this text was -- I don't  
9 remember this text, I mean the substance of this  
10 was suggested to me in discussions; but I don't  
11 remember whether I drafted this language myself  
12 or not.

13 Q. When you say suggested to you, do  
14 you mean suggested to you by Fortinet's counsel?  
15 I'm asking you only for the purposes of what  
16 ended up being written into your report?

17 A. Yes.

18 Q. Did you have any communications  
19 with a Dr. Carl (phonetic)?

20 A. I don't believe I did.

21 Q. The interactions you had with the  
22 other folks at Elysium that gave inputs to you,  
23 were they all oral, or were some of them via  
24 e-mail or some other form of communication?

25 A. I think they were oral only. I

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1 can't remember any e-mails, mostly I remember  
2 meetings.

3 Q. Did the other folks that gave  
4 input, did they create any written work product  
5 that was the result of their efforts?

6 A. So written work products at all,  
7 did they take any notes, I'm trying to figure  
8 out?

9 Q. I'm not really so interested in if  
10 they took notes. I'm more interested if they  
11 created drafts of sections of your report or if  
12 they did testing, the results of which you  
13 looked at and relied upon. Let's start with  
14 that.

15 Did they do any testing of  
16 anything, the data of which you relied upon in  
17 formulating your opinions?

18 A. Yes. Colleagues of mine did the  
19 work of looking at the configuration files.

20 Q. Is there work product attached as  
21 an exhibit to your report?

22 A. Yes. I believe there's an exhibit  
23 with a table of the result of the configuration  
24 analysis. I think it's called Exhibit  
25 Configuration Summary.

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1 MR. MCGREARY: Would you mark one  
2 of these.

3 (Exhibit 194, Document entitled  
4 "Exhibit Configuration Summary" marked for  
5 identification.)

6 A. Yes.

7 Q. Who did the majority of the work on  
8 that report?

9 A. On this exhibit?

10 Q. Yes.

11 A. Paul Mattal.

12 MR. MCGREARY: Mark this as well.

13 (Exhibit 195, Document, marked for  
14 identification.)

15 MR. MCGREARY: Do you know what our  
16 obligations are under the protective order in  
17 showing the witness, he's already signed the  
18 protective order, right?

19 MR. COOPER: Yes.

20 MR. MCGREARY: There's some  
21 third-party material that was stamped.

22 MR. COOPER: I do not know the  
23 precise rules.

24 THE WITNESS: Should I not be  
25 looking at this yet?

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1 MR. MCGREARY: You can look at it  
2 as long as we're designated highly confidential,  
3 attorneys' eyes only.

4 Q. I'm showing you what was marked as  
5 Exhibit 195. Have you seen this document  
6 before?

7 A. No. More precisely I don't  
8 remember seeing it before.

9 Q. Do you recognize what it is?

10 A. It appears to be a firewall  
11 configuration, or portion of it.

12 Q. Can you on the first page tell what  
13 the configuration is?

14 A. I can pick some things out.

15 Q. Why don't you try that.

16 A. The top of the page is clearly in  
17 the middle of some other block that ends with  
18 the word "and," where the word "and" appears  
19 right above the word config. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[illegible]

25 further questions for the witness at this time.

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1 Obviously that's marked so you know how to  
2 handle that. I'm not going to leave this  
3 exhibit with the court reporter, I'm going to  
4 take Exhibit 195 with me and I'll scan it and  
5 send it to you.

6 MR. COOPER: Understood.

7 MR. MCGREARY: If you want to make  
8 a copy of it now you can.

9 MR. COOPER: Okay.

10 MR. MCGREARY: Why don't you do  
11 that and then I'll take it with me.

12 MR. COOPER: I don't have any  
13 questions.

14 MR. MCGREARY: Thank you so much  
15 Mr. Hicks. Thank you for accommodating what was  
16 kind of a crazy travel schedule.

17 (Time Noted: 1:38 p.m.)

18

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C E R T I F I C A T E

I, Roberta Caiola, a Shorthand  
Reporter and Notary Public within and  
for the State of New York, do hereby  
certify:

That the statements, colloquy  
and testimony contained herein is a  
true record of the proceedings in this  
matter.

I further certify that I am  
not related to any of the parties  
involved in this proceeding, and that  
I am in no way interested in the  
outcome of this matter.

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ROBERTA CAIOLA



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